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CIO

THE MAGAZINE FOR INFORM

JULY 15, 1999

SECTION ONE
146 PAGES IN TWO SECTIONS

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CIO Oliver Butler holds the key to lock-tight security at Commonwealth Edison

Is IT Safe?

How to Build Security Your Users Won't Blow Off

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Leadership Case Study, Conclusion

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The Perils of PC Single Sourcing

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pentium•III

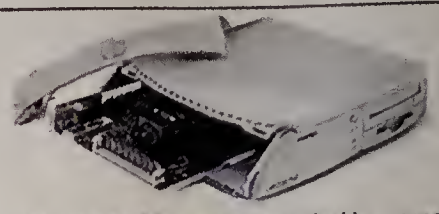
Toshiba's Small Door a Big Help

Opening on side makes servicing Equium* easy

BY MICHAEL CATON, PC WEEK LABS

THE SIDE DOOR ON THE EQUIUM 7000S desktop PC is one of those small features that works so well that it's a wonder no vendor thought to include one like it before.

The side door on Toshiba America Information Systems Inc.'s $1,714 computer is designed to make



The Equium 7000S allows easy inside access.

plans for the 7000 series call for continu-

ONLY 1 IMAGE

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EQUIUM 7100D

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Wired for Management (WfM) Compliant	Yes
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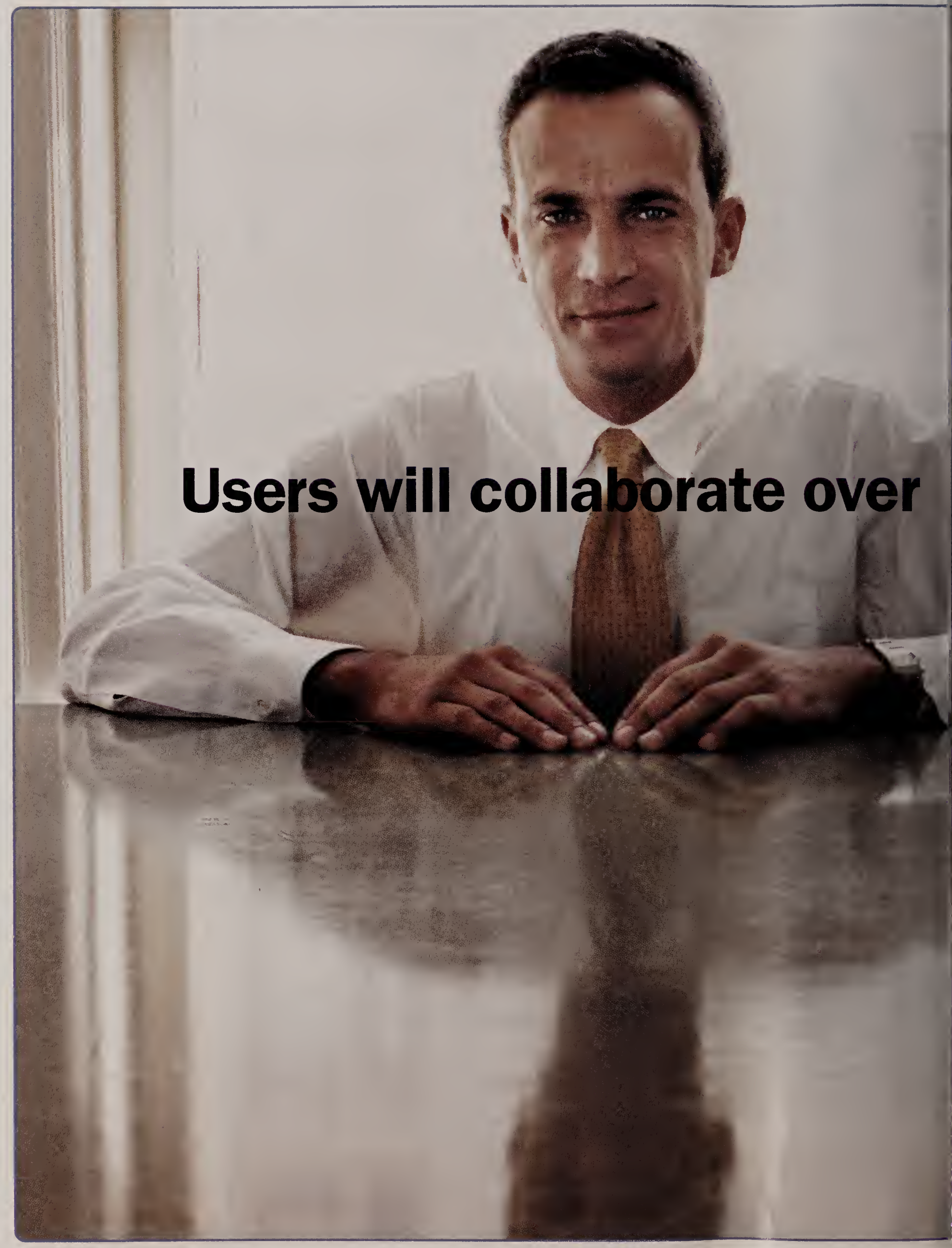
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SYSTEMS INTEGRATION Confused? Losing things? Having difficulty communicating? Those are all symptoms of what's become an epidemic in the health-care industry. The Internet may be a cure.
By Christopher Koch

MORE ►►►

ON THE COVER

Spreading the word on security issues.

Cover photo by Greg Gillis

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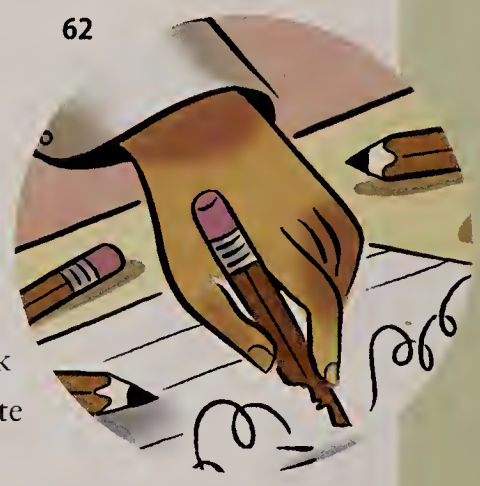

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COMPETITIVE INTELLIGENCE Corporate info-gathering pros reveal some of their favorite techniques.

I.T. CRISES Y2K tops the list, but plenty of other IT emergencies are waiting to erode corporate profits.

BUSINESS MANAGEMENT Practitioners of value-based management pursue a hard line for corporate success.

REALITY BYTES Headed for a merger or acquisition? Don't forget cultural issues.

EXECUTIVE SUITE The CEO of USAA Life talks about technology—and grandkids.

CHECKS & BALANCES Five steps to capturing IT value and measuring the results.

LEARNING CURVE VPNs may not be totally private—but the price is right.

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Papa says we have been enemies for 5000 years, but Moustafa seems OK when he emails me.

David, age 14

Moustafa, age 12

In the Middle East, kids often learn to do their communicating with violence. That's why Oracle's Promise and community volunteers put computers, printers, software, and Internet connections into both Israeli and Palestinian schools. It's part of Oracle's $100 million commitment to education which has placed over 5000 computers in 100 schools around the country, and the world. So far. Help us give more kids a better education, and a better chance. Email us at promise@us.oracle.com or come visit www.oracle.com/promise.

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In Box

LETTER FROM THE EDITOR AND HOW TO REACH US

In the last issue of *CIO*, I used my editor's letter to vent—perhaps excessively—about CIOs not taking enough initiative when it comes to the Web. Feeling contrite, I've decided to devote this letter to the flip side of that coin. CIOs may be outnumbered by their bosses and peers at the head of the Internet charge. But I am committed to the idea that, with few exceptions, those companies with a strategic technology/business person (that is, a CIO) at the head of their online efforts will have a distinct advantage over their competitors who don't.

If there's any company that needed to "get it"—and get it fast—it was Barnes & Noble. While B&N was busy slaying the chains and independent booksellers, along came Amazon.com, literally out of nowhere. Amazon is the archetype of the Internet competitor that springs up to eat the bricks-and-mortar company's lunch. In fact, if you haven't heard the term "to be Amazoned" yet, you will soon.

Amazon may have mastered the online bookselling world first, but B&N has a pretty impressive track record of responding to new competitive threats. (For a good profile, see the June 21 issue of *Fortune*). Barnes & Noble set up shop on America Online in early 1997 and moved to the Web shortly thereafter. Barnesandnoble.com partnered with global publishing giant Bertelsmann in fall 1998, with CEO Jonathan Bulkeley at its head. Gary King, former vice president of global IT for Avon Products, became its CIO in January '99.

King is essential to B&N's strategy. While Amazon.com moves beyond books to sell items such as jewelry and hold auctions, B&N's goal is to be the source for books and all things book-related, period. Today B&N says it offers 4.6 million titles compared to Amazon's 3 million. "We're moving from a retail model of buy, store, sell to an Internet model of sell, source [find who's holding the book], deliver," says King. To deliver on this model means knowing where every book is—whether it's a bestseller or out of print—and how quickly it can be delivered. King is developing real-time connections between publishers and wholesalers worldwide (there are tens of thousands of publishers in North America alone, he says).

But those aren't the only connections that matter. Barnesandnoble.com has a host of partnerships and alliances that are critical to its growth, including deals with CNN Interactive, *USA Today, The New York Times Book Review* and even corporate intranets, all of which feature links to the barnesandnoble.com system.

Barnes & Noble had the competitive will to take on Amazon.com before Gary King signed on; now it's got the technological savvy to pull it off. When the next wave of consumers comes online—those who are familiar with Barnes & Noble stores but have never bought a book from Amazon.com—Barnes & Noble will be there ready to serve their every book-buying, reading-related need.

The question is, what steps are you taking today to avoid being Amazoned in the future?

Abbie Lundberg
lundberg@cio.com

PHOTO BY WEBB CHAPPELL

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In Box

LESS THAN IDEAL

I was really disappointed in your ideal IS building ["IT Builds Its Dream House," *CIO* Section 1, May 1, 1999]. The building you describe would be a hellhole for IS workers and a disaster for productivity. You say it represents ideas from real CIOs and of that I have no doubt. This is yet another sign of why your typical CIO's tenure is less than the half-life of Californium.

Your design ignores the KISS (keep it simple, stupid) principle, sacrificing everything for openness. Meeting rooms are enclosed in glass so that meetings don't get disturbed by people checking to see if the room is empty? What about meetings being disturbed by people looking up to see who is walking by? The simple solution is to put a sign on the door.

Programmers need to be able to talk together and to have quiet. The simple solution is to put people in enclosed offices. Your solution is to have them move back and forth between work areas.

The concept of making IS staffers visible to make them appreciated by the rest of the organization is silly. The typical IS organization is the corporate laughingstock because they don't do anything, not because no one sees them. Since most good development work involves thinking—having people staring at the sky with blank looks on their faces solving problems—it usually is not a good idea to have IS people visible at work.

However, if you are the typical CIO who thinks systems are created by having bodies typing away from 9 to 5 (7 to 6 during crunch time), I guess making your organization visible to show all the activity would make sense in a twisted way.

John M. Miano
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miano@colosseumbuilders.com

CASTING A VOTE

I enjoyed "e This, e That, e The Other..." [*CIO* Section 2, May 1, 1999.] May I add that numerous factors contribute to the demise of America's voter turnout, and it is a dear shame that so many people don't take advantage of this right—the same right that others literally die for across the world.

Political apathy is an epidemic. Those same voters who do not value their right to vote probably do not value the Internet. This is a generalization but may also point to not only political discourse but human discourse. I agree that the e-ing of this process will not lead to the evolution of increased voter turnout, but it may represent an efficient means to a greater end.

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CORRECTIONS

We incorrectly reported some information regarding Phillips Petroleum Co. in Section 1 of the May 15, 1999, Trendlines section ("X-Raying the Enterprise," Page 26). Phillips Petroleum used Ernst & Young as its accounting firm in 1989, and the company did not experience the revenue loss as we reported. In addition, Pete Silas, the company's CEO in 1989, retired in 1994 after serving in that position for nine years.

We incorrectly characterized Australia's upcoming vote in "Australia Unbound," *CIO* Section 1, June 1, 1999. In fall 1999, Australian citizens will vote on whether to become a republic or to remain a constitutional monarchy.

We incorrectly identified Internet Dynamics Inc. in "Looking for Security's Suite Spot" (*CIO* Section 1, June 1, 1999). We regret the errors.

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Have a question about security? You can pose it to Mark Gembicki, CTO at WarRoom Research Inc., a consultancy based in Annapolis, Md. From now until July 31, Gembicki will be available at *asktheexpert@cio.com* to offer insight and advice on the challenges of protecting the enterprise from hackers and other security breaches.

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Publisher's Note

I recently traveled to Bangalore, India, to help our partners launch *CIO India*.

The intent of the trip was for me to share our publishing knowledge of *CIO*—something we know a thing or two about, since we have been doing it here in the United States since 1987. What I discovered was quite interesting.

In my naiveté, I had prepared tutorial material underscoring the mission of *CIO*, including information about how we produce this magazine twice a month. That, I was about to learn, was unnecessary.

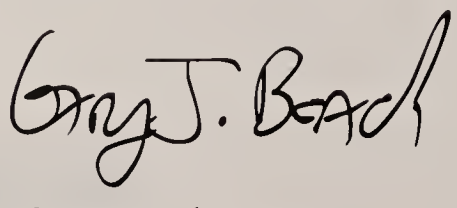
When I landed in Bangalore, I picked up a copy of *BusinessWorld*, India's leading weekly business magazine. The lead story, "CIOs Make the Grade," perfectly depicted the critical issues facing CIOs in India. The story reflected the concerns of a CIO so accurately that it could have run in *CIO* in the United States.

During the next 72 hours, I met with the leading users, vendors and government officials in the Indian IT community. They told me that *CIO India* was going to be a huge success. Their reasoning? Technology deployment in India is no longer a back-room support function; it is the critical foundation of a company's core business model.

The staff of *CIO India* had also listened to these customers. I was impressed at the magazine's prelaunch party when the cover of *CIO India* was unveiled to show a picture of a CIO and a CEO with the headline "The CIO/CEO Partnership: Is It Working?"

"Wow, these guys are good," I said to myself while eyeing the cover. They have already zeroed in on the key issue facing CIOs here in the United States. And they did it before I ever set foot in Bangalore.

Coming soon via *www.cio.com/printlinks* and *www.cioindia.com*, you will be able to link to *CIO India* and develop digital, and I hope personal, relationships with your very astute CIO colleagues in India. Welcome, *CIO India*, to our growing global family. We look forward to learning from your experiences and sharing ours with you.



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Trendlines

NEWS, INSIGHT, HUMOR, REVIEWS

Edited by David Rosenbaum

The Coolest Place in the World

INNOVATION The Media Laboratory at MIT's campus in Cambridge, Mass., is a veritable playground for technophiles. With an annual budget of nearly $30 million (more than 90 percent of which comes from 160 corporate sponsors), the lab explores how computing can become part of everyday life. The 200 or so ongoing projects, fanciful and practical, are grouped into three research consortia: Digital Life examines the connection between people and objects in an online world; News in the Future looks at technologies that will improve the collection and distribution of news; and Things That Think explores ways of infusing objects such as sneakers and chairs with intelligence.

A tour of the lab reveals a future where computers will truly be pervasive. If you think that's the case now, with pocket-size PCs and embedded chips in everything from toasters to Lincoln Town Cars, just wait until you're wearing a denim jacket (sponsored by Levi Strauss & Co.) spangled with "e-broidery" (conductive threads made of Teflon), unobtrusive circuit boards, pint-size MIDI (or musical instrument digital interface) synthesizers and tiny loudspeakers. Called the Musical Jacket, it makes a fetching fashion statement, and that's not just whistling Dixie—which, of course, it does.

Another highlight is the Counter Intelligence project. In an area cluttered with bananas, doughnuts and yogurt cups, researchers are hard at work developing the "self-aware" kitchen: refrigerators with databases that track food expiration dates, countertops that monitor recipe ingredients and ovens with Internet connections that automatically calibrate temperature and cooking time.

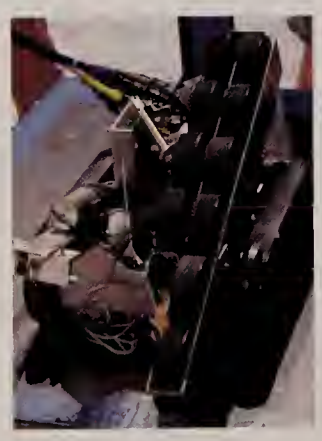
With innovations like these, don't be surprised if one day you find yourself dancing to the beat of your Musical Jacket while your kitchen prepares dinner all by itself.

–Megan Santosus

2.007—License to Design

SCHOOL NEWS Every year for the last 29 years, the second semester of MIT's Design and Manufacturing I course for sophomores has been devoted to the Design 2.007 contest. Students are given a bag of wheels, widgets and motors, and are told to use those materials (and only those materials) to build a machine that performs a simple task better than any machine any other student can design. Sponsored by such heavyweights of American industry as Black & Decker, Ford, GM and Polaroid, corporate honchos flock to the contest looking to sign up young engineering talent.

In this spring's MechEverest competition, the students had to create a robot that would haul hockey pucks up an inclined steel table bordered by a Lexan plastic wall and drop up to 20 pucks into one of three slots on the slippery slope, each slot a quarter-inch wider than the pucks themselves. Students were given 45 seconds to do the job. Each puck successfully deposited scored points, with the slot on the relatively flat bottom section of the table worth one, the one in the steeper middle section worth three and the top slot (where the incline was 45 degrees) worth five.



The winning machine

The contest, held over two days in the Cambridge, Mass.-based university's ice rink before a crowd of nearly a thousand cheering students, parents, alumni, sponsors and professors, began with 128 machines competing with each other in a round-robin, single-elimination tournament. The rigor of the contest demanded that the machines demon-

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strate two essential qualities of good engineering: robustness and repeatability.

Some machines crawled along the Lexan wall; others shot grappling hooks over the top edge to haul themselves up the slope. Some robots took advantage of gravity to drop the pucks in the slot; others used pistons to push the pucks along. Some evil machines even deployed marauding drones to interfere with the competition.

The contest, presided over by Professor of Mechanical Engineering Alexander Slocum—who was decked out in a straw hat and a Dilbert tie—was conducted in an atmosphere of high hilarity that belied the intensity of the competition. One finalist was a grappler; the other, a four-wheeled truck that pushed the pucks through a chute. The winner was the grappler, designed by David Arguelles, a sophomore from Olympia, Wash. Arguelles' machine used a singular strategy: It dragged its pucks in a trailer and relied on gravity to drop them through the slots from above.

Arguelles said the sled was an afterthought, added to the original design just days before the contest. "I knew the other designs would be good," he says, "so I thought I needed something extra."

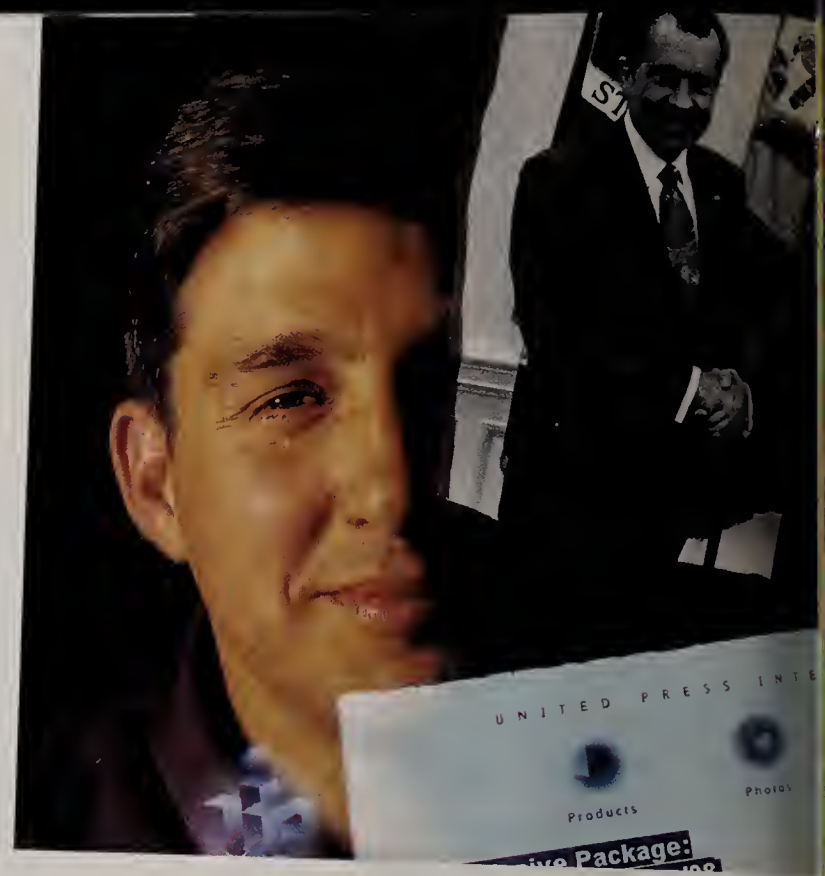
And good engineer that he is, what made him happiest about his design was how reliable it was.

Smart guy, Arguelles. Remember the name.

For more on the contest, visit *pergatory.mit.edu/2.007*.

–David Rosenbaum

Left in the Lurch



Andrew Meldrum, former CIO of UPI, is now COO at iDefense.

A YEAR AGO TODAY In a story published one year ago, we described the efforts of Andrew Meldrum, then CIO at United Press International (see "News Made to Order," *CIO* Section 1, July 15, 1998). You may recall that when we last left Meldrum, he was helping to lead a turnaround at the floundering old-line news service. Meldrum was working with CEO James Adams to build a new technology infrastructure that would allow UPI (*www.upi.com*) to deliver custom packages of news, photos and other media over the Internet.

In less than a year of Adams' leadership, UPI cut its losses in half and raised revenues by 50 percent, Adams says, although it was still (and, according to Adams, still is) losing money. But if UPI ever gets its groove back, it will do so without Meldrum and Adams. They jumped ship in August 1998 to found Infrastructure Defense Inc. (iDefense) with Kristine Roquemore, also a UPI colleague.

Meldrum, now COO at iDefense (*www.idefense.com*), describes the Alexandria, Va.-based organization as a knowledge company that helps clients pinpoint potential weaknesses in their critical information and communications networks. "With e-commerce, just-in-time inventory, EDI and everything, companies are so interconnected that they need help to understand what's going on out there" in terms of information security and risk, Meldrum says. iDefense collects and analyzes risk assessments, information about various types of threats (hackers, competitive intelligence, industrial espionage and whatnot), and infrastructure and technology information from a variety of public and private sources. It also makes this knowledge base available to clients. Meldrum says iDefense is growing quickly and should reach 100 employees or so by year's end. (For more on security, see "Is IT Safe?" Page 40.)

Back at UPI, Arnaud de Borchgrave has taken over as president and CEO. De Borchgrave knows a bit about the spy versus spy arena himself, having written novels (*The Spike* and *Monimbo*, both now out of print) about disinformation and intelligence work. He is also a former editor-in-chief of *The Washington Times*.

–Derek Slater

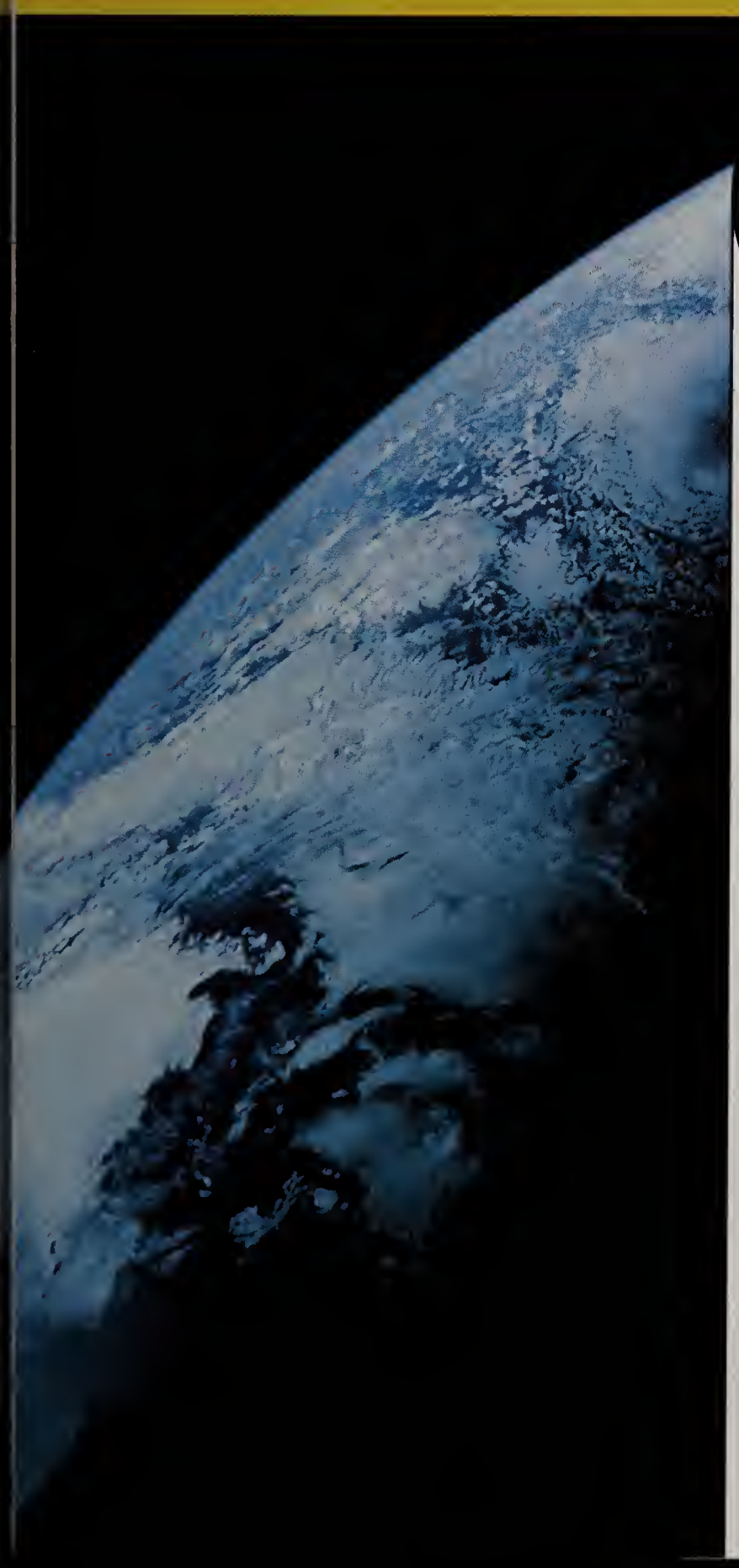
OVERHEARD

"One of my programmers refers to Java as Fisher-Price C++. It's as powerful as C++, but the edges are rounded off so you can't hurt yourself."

–Jeff Gordon, vice president for Precedent 2000 Advanced Architecture, Convergys Corp., at Open Systems Advisors Inc.'s 1999 Crossroads Conference in Rancho Mirage, Calif.

PHOTO ABOVE BY WALTER CALAHAN

Whoever called the unknown "great" never managed a corporate network.



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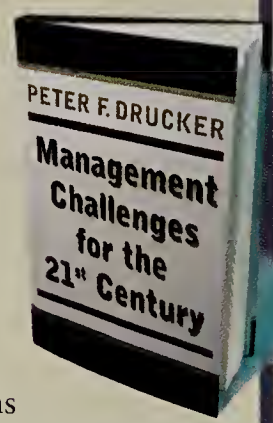
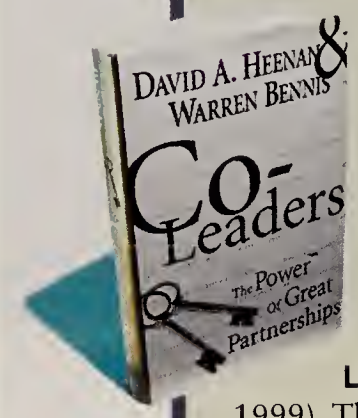
Off the Shelf

Variations on the Theme of Leadership



FOR THOSE WHO BELIEVE THAT LEADERS ARE MADE, not born, there's no shortage of books offering advice on how to make one. Anyone looking for a thought-provoking read on the subject of leadership should pick up **Management Challenges for the 21st Century** (HarperCollins Publishers Inc., 1999), Peter F. Drucker's latest book. In Drucker's view, the most pressing management issues have less to do with obvious business trends (such as the introduction of the euro or the growth of the Internet) than with social, demographic and economic changes such as the declining birthrate in the developed world and shifts in disposable income. To deal with these issues, Drucker implores business leaders to question their assumptions—some of which, like the efficacy of teams, Drucker at one time propounded. One of the more intriguing ideas Drucker posits: Noncustomers are more important to businesses than their customers are because there are more of them.



Warren Bennis has teamed with David Heenan to write **Co-Leaders: The Power of Great Partnerships** (John Wiley & Sons Inc., 1999). The authors propose that in this era of celebrity CEOs, collaboration and cooperation with a second-in-command is essential. The book explores why occupying the second chair to a high-profile CEO is more challenging than sitting in the top spot. For one reason, number-two executives toil just as hard as CEOs do but rarely bask in the same degree of recognition. Which is why, contrary to convention, second fiddles need to have stronger egos than their maestros. Among the co-leaders singled out as exemplary are Microsoft Corp.'s Steve Ballmer and Intel Corp.'s Craig Barrett.

CIOs who find themselves in a new job should pick up **Right from the Start: Taking Charge in a New Leadership Role** (Harvard Business School Press, 1999), by Dan Ciampa and Michael Watkins. While the authors don't equate leaving a company with failing, they note that two-thirds of those company presidents appointed from the outside are gone within five years. The book delves into how new executives can improve their odds of success by systematically managing the transition process.

Best known for its public-opinion polls, The Gallup Organization Inc. has conducted human resources-focused research for years. Authors Marcus Buckingham and Curt Coffman have sifted through interviews Gallup conducted with 80,000 managers to come up with common traits of effective leaders. Their book, **First, Break All the Rules: What the World's Greatest Managers Do Differently** (Simon & Schuster, 1999), explores how great managers hire for talent, define outcomes, focus on strengths and find the right fit for employees. *–Megan Santosus*

"Managers succeed by supplying answers; executives succeed by asking questions. When managers are promoted into the executive ranks, they often need to learn that skill."

–Karen Arden, associate dean for executive leadership and development, University of Toyota

(For more on leadership, see "Stranger in a Strange Land," the third and final piece of our leadership case study, on Page 62.)

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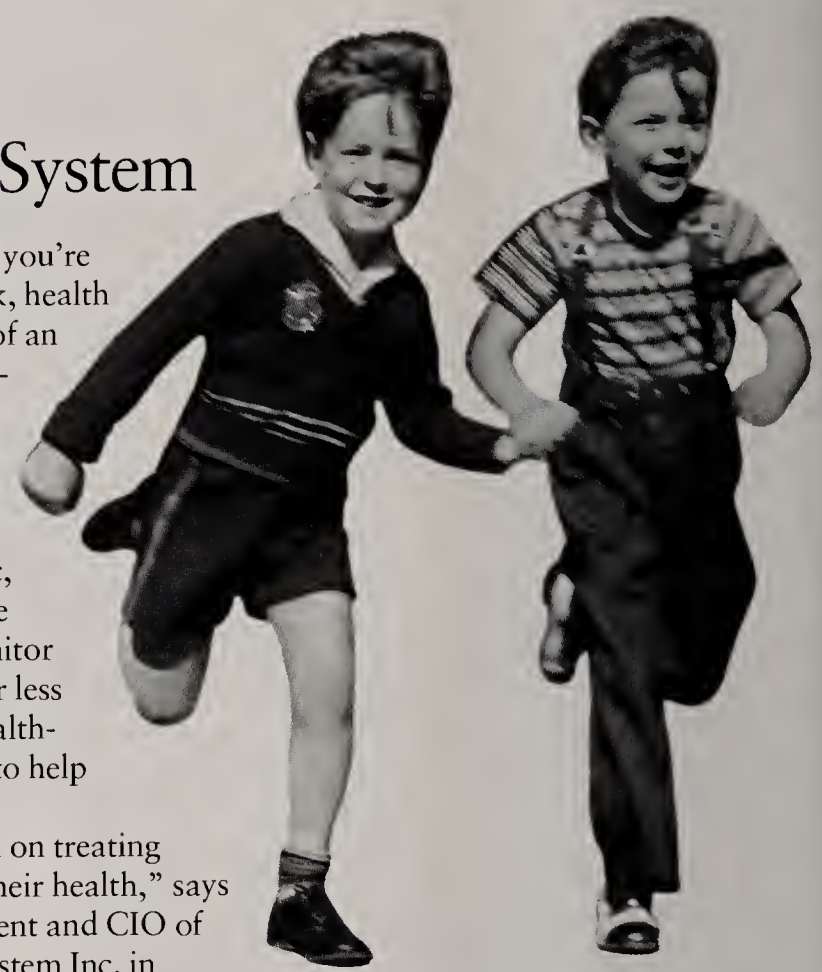
–From *Managing Quality Fads: How American Business Learned to Play the Quality Game* by Robert E. Cole (Oxford University Press Inc., 1999)

Why Weight Watchers Will Be a Good Investment for Years to Come

"Imagine the *frustration* of being interrupted by a *phone call* in the middle of watching TV. Is it your daughter, mother or a telemarketer? Now you can find out without ever leaving the *couch*...."

–From a recent Bell Atlantic press release promoting a new service that displays telephone callers' names and numbers on home television screens

The Buddy System



I.T. IN HEALTH CARE If you're one of the fortunate folk, health care is mostly a matter of an occasional visit to a doctor's office, perhaps a prescription, lots of fluids and a day off from work. But for a diabetic or an asthmatic, that's not enough. These individuals need to monitor their conditions more or less constantly—and the health-care system isn't set up to help them do that.

"Health care is based on treating people, not managing their health," says John Glaser, vice president and CIO of Partners HealthCare System Inc. in Boston. (For more on health care, see "Information Sickness," Page 52.)

Studies show that it costs less to help an asthmatic manage her illness than to wait until there's a crisis, but few convenient methods have emerged to create a strong daily link between doctors and their chronically ill patients that don't involve somebody traveling somewhere—until the Internet.

Health Hero Network Inc. (*www.healthhero.com*), a Mountain View, Calif.-based company, has developed an automated online service that relies on a simple device called the Health Buddy, which patients of participating doctors use to update their conditions and receive information, messages and reminders. The device, about the size of a palmtop, has a back-lit screen that can flash a set of multiple-choice questions developed by a doctor to track an illness. The patient hits one of four buttons on the keypad to answer the questions, such as, "How are you feeling this morning?" The Health Buddy, which hooks into the patient's phone line, dials Health Hero's data center, where the updates are stored in a patient database. The doctor can then access the data through the Internet, where she logs on to a secure area on Health Hero's Web site to view the updates.

The Health Buddy patient monitoring system

Health Hero is currently filing for permission from the FDA to connect Health Buddy to blood glucose meters and eventually to blood pressure cuffs and other diagnostic equipment in patients' homes and download that biometric information automatically, saving the patient a lot of hassle and doctors a lot of time. The company plans someday to use the Health Buddy for other services, such as postoperative monitoring.

There's no word yet whether Health Hero will supply that stiff white rice paper for the patients to sit on while they hook themselves up to the equipment. ■

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City Stickler

Rudy Giuliani's CIO oversees the core of the Big Apple

BY MATT VILLANO

IN THE SHADOWS OF NEW YORK'S World Trade Center, a black Crown Victoria pulls up beneath a sign that reads "Authorized Vehicles Only." Judging from the car's tinted windows and the siren on its dashboard, this vehicle is authorized.

The door opens and a bearded man in a dark suit climbs out: Allan Dobrin, commissioner of the city's Department of Information Technology and Telecommunications (DoITT). It's 7:50 a.m. Dobrin is starting his day.

Dobrin, 51, is New York City's CIO, the second person to serve in the position since it was created in 1995. He is not your typical IT executive, and the difference is largely a matter of scale. With a $147 million budget for FY 2000, he is responsible for the smooth operation of an infrastructure used by almost 18 million people 24 hours a day, 365 days a year.

As a political appointee in a political position, Dobrin must be sensitive to how his decisions will be perceived by the public. In other words, he has to deal with the media. When the city's 911 emergency line went down this past winter, Dobrin drove in on a Sunday afternoon, siren blaring, to help fix it. When Mayor Rudolph Giuliani recently announced that the city would enter the new millennium without major technological hiccups, he was relying on Dobrin's word. "In the private sector, there's only one bottom line," Dobrin says. "In government, there are multiple bottom lines. With every decision I make, I've got to [consider] the mayor, the constituents and the media. In government, fairness is just as important as efficiency. You always need to be patient."

This brisk spring morning, Dobrin enters the DoITT building at 75 Park Place, half a mile from City Hall, and takes the elevator to his sixth-floor office. He dumps his briefcase at the foot of his desk and hangs up his suit jacket. Behind him, on his computer, the screen saver counts down to Jan. 1, 2000. This morning, there are only 288 days, 15 hours, 55 minutes and 23 seconds left. Dobrin faces the machine, cracks open his daily can of V8 and starts reading his e-mail.

His office is comfortable and bright. Some of New York's most famous politicians are hanging, framed, on his wall. In almost 20 years of public service, Dobrin has worked in a number of capacities for three different mayors—Ed Koch, David Dinkins and, today, Giuliani. A registered Democrat (Giuliani is a Republican), Dobrin says his politics has never affected his ability to get stuff done. As proof, he rattles off a list of jobs he's held in city government, a recitation that takes so long he nearly forgets about his biweekly meeting with DoITT's senior-level staff.

9:03 a.m. Dobrin begins the meeting by reviewing a recent hearing he had with members of the City Council. Dobrin has 12 senior staff who together oversee DoITT's IT staff of nearly 300. He reports on the state of the city's Y2K efforts, explaining that he has been meeting individually with commissioners from each of the city's 48 agencies and has learned that the work to make the city's almost 700 mission-critical systems compliant is now 80 percent complete.

He switches gears and launches into an update on the city's e-government project, a multimillion-dollar plan to put government services online. By early in the new millennium, if all goes well, New York residents should be able to file consumer affairs complaints, pay parking tickets and order death certificates online. After an initial investment in technology, the city should save money, as civil servants are taken out of the process. This initiative, he tells his staff, is his priority as CIO.

10:15 a.m. Dobrin walks to City Hall. He and Bill Keller, a deputy commis-

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sioner at DoITT and director of the city's Office of Technology, have a 10:30 appointment with Dobrin's boss, Joseph Lhota, the city's deputy commissioner for operations. Keller came aboard in August 1998 but has known Dobrin for nearly 20 years. The two are good friends. When asked to discuss how he thinks Dobrin is doing as CIO, Keller talks about life in the public versus the private sector.

"The field of vision is much more narrow in the private sector," says Keller. "When the private sector says, 'We're going to do this,' it's much easier to get things done. But here in government, the system is set up so that someone can't take over and run the whole show. [Dobrin] understands that. He's been a public servant for so long that I'm not sure anyone understands it [as] well."

10:46 a.m. Lhota greets Dobrin and Keller. After some partisan banter, Dobrin tells Lhota about a new fellowship program that the Office of Technology is developing through which New York computer science students can work for DoITT. Lhota asks Dobrin about the search for an off-the-shelf application to handle the city's human resources efforts, and Dobrin says DoITT hasn't settled on a package. Lhota urges him to keep looking.

11:41 a.m. After a short break, Lhota brings back Dobrin, this time for a meeting about Y2K with Brian Cohen, executive director of the city's Year 2000 Project Office. Cohen reviews some of the city's contingency plans. If the traffic system falters, the lights can operate on timing mechanisms that date back to the 1950s. If the payroll system goes down, Cohen has three months' worth of paychecks on reserve. Lhota seems pleased. Cohen suggests a moratorium on office moves until March 2000 so as not to complicate things.

Next, Dobrin updates Lhota on his meetings with agency heads about preparedness. He wants to use a headhunter to find a person to run the city's task force on Y2K awareness, and Lhota gives the go-ahead. Usually, Dobrin doesn't need Lhota's approval on new hires, but the city doesn't typically endorse using headhunters. Dobrin wants to make sure Lhota consents in case the media makes an issue out of it.

"[Dobrin] always seems to have a handle on the sensitivity of an issue," Lhota says. "That might not be important [in the private sector], but here it's essential."

Now it's Lhota's turn to ask a favor. Mayor Giuliani is scheduled to meet with Ivan Seidenberg, chairman and CEO of Bell Atlantic Corp., at 4:30 p.m. to discuss the future of the city's Bell Atlantic pay phones. Lhota isn't sure what Seidenberg wants beyond that, but because Dobrin is in charge of telecommunications, Lhota asks him to think of issues that Seidenberg might raise, so that Giuliani won't be caught off guard. Dobrin agrees to have some talking points ready by 3 p.m.

12:44 p.m. Back in his office, Dobrin mentions that whenever his two sons visit him at work, they're amazed by how much time he spends talking.

"They were shocked that all I do is meet with people," Dobrin says. "They're right. At the end of the day, this job is simply learning to apply judgment to certain situations. There are aspects of it that are just as hands-on as other CIO roles, but to a large extent, this job requires you to focus more on policy than on process."

"This job requires you to focus more on policy than process."
–Allan Dobrin, New York City CIO

A focus on policy doesn't bother Dobrin, who admits he is more of a public servant than a technophile. After earning a bachelor's degree in political science from Queens College in 1978, he headed straight for city government. He says that if an issue comes up that he lacks the technological skills to handle, he simply delegates to someone who does.

Dobrin eats lunch at his desk: eight pieces of sushi and a can of lime-flavored seltzer. As he eats, he opens his mail.

1:39 p.m. Still in his office, Dobrin is thinking about Seidenberg now. Dobrin talks with Elaine Reiss, DoITT's general counsel, who specializes in telecommunications law. Reiss suggests that a lawsuit against Bell Atlantic, in which New York City recently won a judgment that the city asserts is worth $100 million, might be on Seidenberg's mind. Dobrin had forgotten about this.

3:05 p.m. Lhota calls, and Dobrin mentions the lawsuit and the judgment. Lhota hangs up in a hurry.

3:20 p.m. Lhota calls again. A billboard in the theater district has fallen, injuring at least three people. Giuliani has gone to the scene, and the meeting with Seidenberg is off. Dobrin shrugs.

"I wouldn't want to be CIO somewhere else," he says, "because I'd miss things like falling billboards. There's something to be said for the excitement around here. Every night, when I go home, I can see my day play out on the nightly news. That's something you don't get with every CIO job."

3:31 p.m. Dobrin heads up to the seventh floor for a 90-minute meeting about public pay-telephone franchise fees, this time with officials from the city's Office of Management and Budget.

5:29 p.m. Back in the office. "I've always got 100 balls in the air, and there's always something coming to fruition," Dobrin says. "In government, that's how it has to be. Things take so long that waiting around for one specific task or project to happen would drive you crazy. You've got to be on your toes."

Dobrin's assistant, Lorraine Spina, comes in with more mail and a binder of personnel and staffing issues to review with him. This takes about 30 minutes, and when they're done, Dobrin calls his wife to tell her he'll be home around 8 p.m. She says that she and their sons will hold dinner.

6:46 p.m. Like a horse sniffing the stable at the end of a long ride, Dobrin is moving fast now. He scans his list of 43 new e-mail messages and replies to the urgent ones. Next he checks his voice mail. While he's listening, people poke their heads in to say good night. Dobrin looks up, cradling the phone between his head and his shoulder, and waves.

7:08 p.m. Dobrin puts on his jacket, grabs his briefcase, shuts off the lights and closes the door, as the screen saver continues its countdown to Jan. 1, 2000. There are only 288 days, 4 hours, 43 minutes and 2 seconds left now. For Alan Dobrin, CIO of the city that never sleeps, that's not so far away. CIO

Matt Villano is a freelance writer based in New York City. He can be reached at mjv@whalehead.com.

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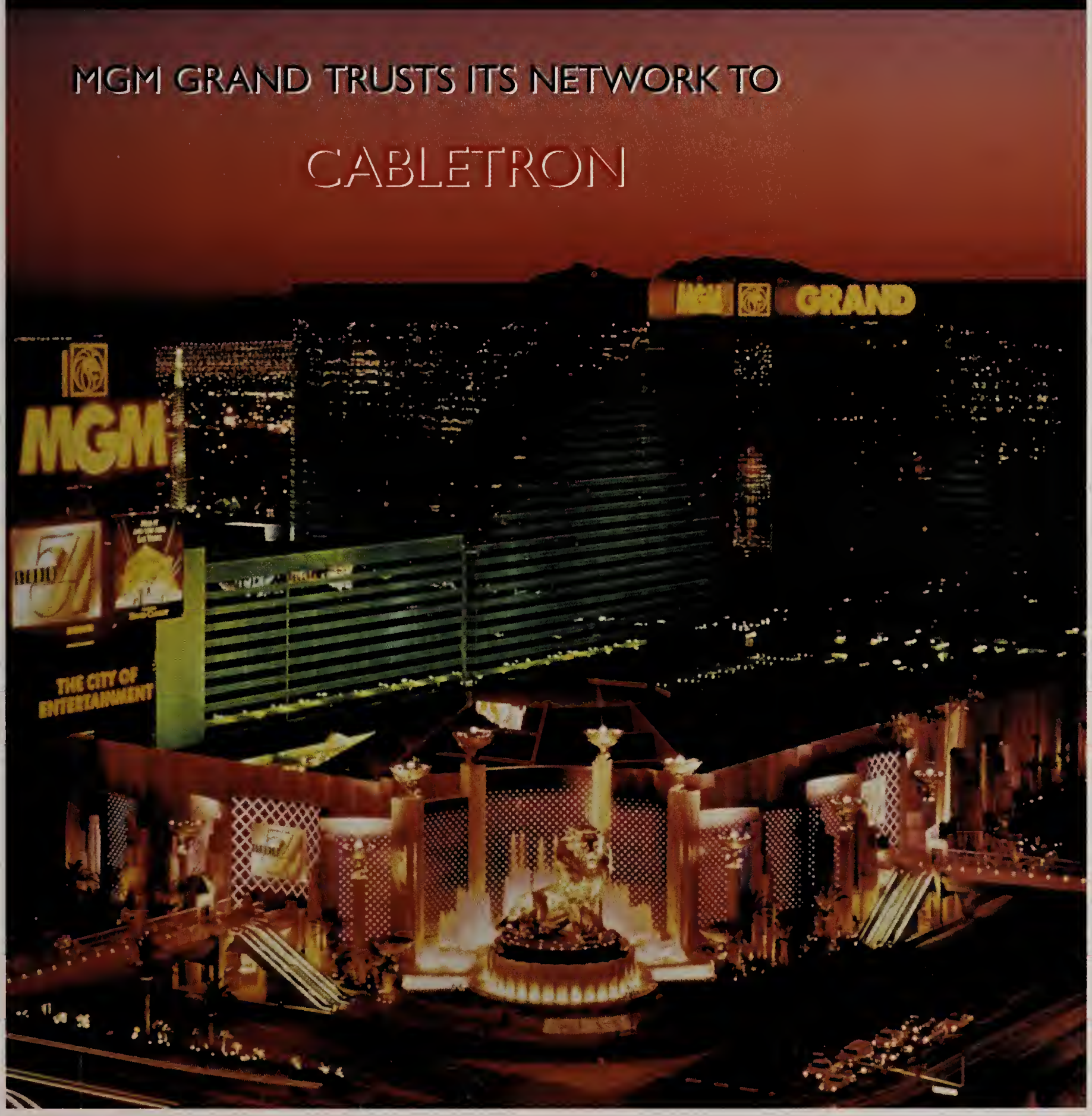

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CABLETRON SYSTEMS

GOING STEADY

BY LAUREN GIBBONS PAUL

CIOs increasingly are relying on a single PC vendor in an effort to reduce costs and complexity. But as in any exclusive relationship, both sides need to make some concessions.

David Kepler saw the value of committing to just one PC vendor long before it was fashionable. In 1995, Kepler, then director of global information systems at The Dow Chemical Co., was frustrated with the complexity and expense of supporting thousands of different PCs on multiple platforms. "We had one of everything," he says.

Kepler hammered out a three-year leasing agreement with IBM Corp. that meant Big Blue alone would provide and support Dow's then-30,000 PCs. As Kepler had hoped, the contract saved Midland, Mich.-based Dow money—30 percent of the total support cost for the PCs during the term of the contract, which expired at the end of 1998. And Kepler got something else in the bargain too. "The primary driver [for the agreement] at the time was to reduce costs," he says, "but we also got the benefit of having a common communications environment for our company globally. We're able to develop and roll out applications much faster."

Buoyed by the success of that first arrangement, Kepler, now vice president and CIO at Dow, has taken the relationship to a higher level, inking a new three-year deal late last year to lease 37,500 PCs from IBM (see related story, "Chief Executives Who Get IT," Section 2, Page 41).

Like Kepler, most CIOs at large companies crave simplicity and stability when it comes to their PC assets. They don't want different versions of operating systems, drivers, graphics chips, applications, peripherals and the like. Nirvana would be to support one model of a PC brand running one software configuration.

But the PC revolution 20 years ago resulted in each corporate department buying its preferred type of PCs, says Bob Dies, general manager of network and PCs for the IBM Personal Systems Group in Somers, N.Y. "We've gotten to the point where [PCs] have become so decentralized and unorganized that [CIOs] can no longer easily deploy applications," says Dies.

Single sourcing of PCs is often the antidote to that complexity. The strategy makes the most sense at large companies because of upfront cost savings, the simplicity of supporting one type of PC hardware and the potential for reduced maintenance costs down the road. (Smaller companies have fewer PCs and less complexity than their large-company peers and thus less to gain from standardizing.) In fact, nearly 62 percent of companies with more than 500 employees source most PC hardware through one primary manufacturer, according to a recent survey of 300 companies of varying sizes conducted by International Data Corp. (IDC), a market research firm and sister company of CIO Communications Inc. in Framingham, Mass.

Single sourcing may sound like a quick route to contentment, but before CIOs enter even the rosy courtship stage with a vendor, they need to establish a few rules.

Reader ROI

IN THIS STORY, YOU'LL LEARN TO

- Judge whether single sourcing is right for your company
- Recognize the traps of using a single PC vendor
- Keep options open, even if you choose a single source

Price Checks

Price is the first potential pitfall of a single-sourcing agreement. Although the upfront arrangement is often sweet—vendors may offer ultra-deep discounts for high-volume orders—it can go sour as PC prices sink. The average price of all PCs sold at retail has dropped about 40 percent in just

two years, from $1,580 in January 1997 to $946 in January 1999, according to PC Data Inc., a market research company in Reston, Va. And those prices might be even lower in another two years.

"A lot of the [single-sourcing] deals we see have become very noncompetitive," says Frances O'Brien, senior research analyst for GartnerGroup Inc. in Stamford, Conn. "[The vendor] gives you fabulous pricing going in, but if you're not watching, over time the pricing becomes less favorable." One of O'Brien's clients, for example, learned he was paying 40 percent over market price because he hadn't reviewed pricing in five years.

And the vendor will not necessarily point out that your pricing is above the market, says Roger Kay, research manager for desktop PCs at IDC. "[The vendor] comes in very aggressively when they sign the deal, but then they never get around to reminding the customer that things have changed in the market and that prices have come down," he says.

Joe Marengi, senior vice president and general manager of the Relationship Group at Dell Computer Corp. in Round Rock, Texas, disagrees with Kay. He says it's unlikely his customers will face noncompetitive pricing for two reasons. First, he says, "Typically, single-source agreements are implemented in conjunction with standardization projects, which drive a much lower total cost of ownership. Acquisition price becomes secondary to overall cost savings driven by lower total cost of ownership." Second, he adds, "single-source contracts don't preclude customers from benchmarking pricing from the competition, and that is standard practice."

Still, CIOs often get complacent once they commit to a trusted partner. They shouldn't. "A diligent CIO would monitor prices, maybe use an independent price index and point those out to the supplier. You've got to keep them honest," says Kay.

A diligent CIO will also have an escape clause in the contract with the vendor stipulating that both sides are free to walk away from the agreement without being sued. The computer manufacturer will likely agree to this clause as long as it specifies that the customer must pay a fee to cancel, says Wayne

Harcourt's Dan Deakin throws the book at users who purchase equipment not included in the company's single-sourcing contract.

PHOTO BY ROBERT BURROUGHS

Bennett, a contract law specialist and partner at Boston law firm Bingham Dana LLP, and a member of *CIO*'s Editorial Advisory Board. That way, he says, if the PC pricing becomes less competitive during the term of the agreement, it would be worthwhile to pay a penalty, get out of the deal and buy PCs elsewhere.

Bennett also recommends including a clause stipulating that the parties will review pricing based on independent market data. "You might say, 'You'll be a preferred vendor, but if the price is off the market by more than X percent, I have the right to go somewhere else,'" says Bennett.

Sara Lee Corp., the Chicago-based manufacturer of foods and other consumer packaged goods, is following Bennett's advice. The company recently agreed to buy all its desktop and laptop PCs through Dell. Jerry Matsumoto, CIO and executive director of worldwide information technology at Sara Lee, expects to spend $30 million in the first year alone on new PCs for a portion of its 150,000-person employee base. He projects savings of 35 percent to 40 percent over the PCs' lifetime (though he declined to translate this into a precise number). Matsumoto says he's well aware of the need to stay on top of the agreement. "We'll sit down on a quarterly basis and review what we're forecasting, what we bought and the price. We'll review the whole performance," he says, adding that he subscribes to an industry pricing index. "We will not get complacent. This is a very dynamic market." If pricing became an issue, Sara Lee would be entitled to buy its PCs elsewhere according to the terms of its contract, he says.

When it comes to ensuring that prices remain competitive, Matsumoto may well have an easier job than his counterparts at small and medium-size companies. Says GartnerGroup's O'Brien, "Since [Sara Lee] is so visible, it will have less difficulty maintaining competitive pricing over time. But the midsize and smaller organizations may end up paying more than market rates." O'Brien and Kay agree that the smaller and less visible a company, the less clout it carries with the vendor and the more important it is to have a backup plan, such as keeping a second acceptable supplier waiting in the wings.

ONE COMPANY WAS PAYING 40 PERCENT OVER MARKET PRICE FOR PCS BECAUSE IT HADN'T REVIEWED PRICING IN FIVE YEARS.

The Diversity Factor

Despite a CIO's best intentions to remain faithful to a vendor, his internal customers may try to get him to stray. And often with good reason. Dan Deakin discovered a few years into a single-sourcing PC leasing agreement with Dell that some of his company's mobile users had a legitimate need for a different laptop than the designated corporate model. Deakin is a divisional information officer for the Academic Press division of Harcourt Inc., which supplies IT services to six of the publishing company's other divisions. Under the terms of the agreement, Harcourt's laptop of choice was the Dell Latitude. But some problems cropped up—a few of the company's road warriors managed to crush the laptop's screen while they were traveling. And at 5.3 pounds, the Dell machine is relatively heavy. Soon, these users were clamoring for a new Toshiba Corp. notebook that's both lighter (at 2 pounds) and more rugged than the Dell Latitude model.

"We're in a bit of a quandary," says Deakin, who is based in San Diego. Though he's already committed to single sourcing, the users are pushing him to procure a limited number of laptops with another vendor. Deakin doesn't like the thought of the increased procurement and support work that would result if he were to depart from the corporate standard, but he wants the best products for his customers. "The Dell offering is significantly slower than either the Toshiba or the Gateways we evaluated," he says. "As a result I think we may end up moving to Toshiba for the laptops unless Dell fixes this very fast."

At Dow Chemical, which recently renewed its contract with IBM, CIO David Kepler's customers work on just one type of PC and one standard laptop.

The more mobile users a company has, the riskier a single-sourcing arrangement will be. GartnerGroup's O'Brien notes that laptops are not as stable as desktop machines. "[Notebook computers] have issues in quality, reliability, availability of spare parts," she says. Product shortages—such as the scarcity of IBM ThinkPads 18 months ago—may be more common than with desktop PCs. CIOs who do go with one manufacturer should keep evaluation units of laptops from a host of other vendors and appraise their performance in the company environment.

Educate Your Customers

Deakin found that just as his customers didn't know buying computers from other vendors was a no-no, they didn't know that even computers from within Dell could undercut the benefits of single sourcing.

Case in point: Harcourt standardized on Dell OptiPlex PCs and the aforementioned Latitude notebooks. Then one of the

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divisions bought a number of Dimension PCs, which are part of Dell's consumer and SOHO line (small office home office), because someone high up in the division had been attracted by the Dimension ads; he didn't realize that buying the consumer model rather than the designated business model would present problems. "They figured if it's Dell, it's OK. They think it doesn't matter what model it is," says Deakin. But the purchases have created expensive inconsistencies because the consumer models are supported by an entirely different division within Dell than the corporate models. "With the corporate model, it's easy for me to swap out hard drives and CD-ROM drives. With the consumer model, it's more difficult," says Deakin. "You really have to be careful about who has buying authority, and you have to closely monitor the purchases."

DESPITE A CIO'S BEST INTENTIONS TO REMAIN FAITHFUL TO A VENDOR, HIS INTERNAL CUSTOMERS MAY TRY TO GET HIM TO STRAY.

And just saying that the corporation has standardized on one PC vendor is not enough. The CIO has to make clear exactly what that means. With executive support, Dow's IS department, for example, embarked on an intense change-management program three years ago to educate the company's employees about the importance of the new corporate-standard PC. When his company was moving from a multitude of different PCs and platforms to IBM machines, Kepler's IS staff sent out surveys to help them identify the company's "power" users, whose opinions they knew could influence the project's success or failure. He then formed focus groups with those advanced employees, and his staff questioned them at length and observed them at work to learn how they used their computers and what kinds of options they required. "It was important to us to understand what they wanted," says Kepler.

Once all the user feedback had been examined, the IS team standardized on two models of IBM desktop machines and two laptop models, which were collectively christened the "Dow workstation." Once the new "Dow brand" of PC was established, Kepler's team sold it to the employees via the corporate intranet, newsletters, videos, meetings, lunches, a user guide and good, old-fashioned word-of-mouth.

Sara Lee CIO Jerry Matsumoto plans to spend $30 million on new PCs in the company's first year of a leasing agreement with Dell.

At the time, Kepler had doubts about requiring users to change from a truly personal computer to a standard-issue Dow workstation. But those qualms are behind him now. After the first rollout of IBM machines, the IS team surveyed the users again and was relieved to find high satisfaction levels.

"[The employees] appreciate being able to log on anywhere in the world just as if they were in the office. They never have to worry what format their documents are in, what version of software they're running," says Kepler. Having rock-solid standards for both hardware and software has streamlined the corporate communication process considerably—which is especially important in a company with offices in 50 countries.

Since he's entered his second agreement with IBM, Kepler has standardized even further. Now there is only one corporate PC (a Pentium II 400 MHz machine with 64MB of memory) and one standard laptop (a Pentium II 300 MHz machine with 64MB of memory) running one software configuration, Windows 98 and Microsoft Office 97. Along with his IBM partners, Kepler will be deploying approximately 10,000 PCs per month until all 37,500 employees have new machines.

Happily Ever After

So what really makes a single-sourcing relationship worthwhile? For Sara Lee's Matsumoto, it's the ability to have a central repository of data about the company's PC assets from its operations in 40 countries. "For an organization as diverse as Sara Lee, something as simple as asset management is tremendously difficult. Now our asset base will be visible to us anywhere in the world," says Matsumoto. Just knowing what software programs are being used and by whom is a major benefit, he says, because the information allows him to negotiate with his software vendors from a position of unprecedented knowledge and strength.

Matsumoto also expects hardware standardization to lead to a standard software configuration, something he devoutly wishes for. Sara Lee won't set many standards, he says, just reasonable ones such as operating system and productivity suite, which will further reduce complexity.

Buying from one vendor also helps companies get out of the software installation business. The IT manager can simply provide the manufacturer with the "golden image," the image of the standard desktop configuration, and have it preinstalled on all new PCs. That saves a tremendous amount of work, says Harcourt's Deakin, a self-proclaimed true believer in PC hardware standardization: "This narrows down the questions." CIO

Lauren Gibbons Paul is a freelance writer in Newton, Mass. She can be reached at laurenpaul@mediaone.net.

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SECURITY

Is IT *Safe?*

For Commonwealth Edison's Oliver Butler, the key to keeping corporate data safe is communicating policy changes to the right people at the right time.

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BY MINDY BLODGETT

Reader ROI

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- Why security issues often put IS and the enterprise at odds
- How to make safe computing everyone's concern
- What technologies are emerging to combine ease of access with safety
- How to determine what level of security is right for your business

Everywhere,

in every city and every nation, the foreheads of information executives are growing damp with anxious sweat. Fear is spreading like one of those nasty new computer viruses we hear about almost every day. And that old whipping boy, the maladjusted juvenile hacker getting his kicks by stealing, destroying or corrupting corporate data, is not the only bogy keeping IT leaders jumping at shadows.

The demons are legion. There's the disgruntled employee who accesses payroll records and posts his supervisor's salary on the Internet for everyone to see. There's the misanthrope who spams e-mail systems with tens of thousands of inane messages, overloading them and shutting them down. There's the spy, the business competitor, who taps into your intranet to steal your company's crown jewels.

These scenarios have become a regular feature of the IT landscape, according to recent security reports (see "Scary Numbers," Page 45). In fact, a joint survey by the FBI and the Computer Security Institute (CSI) reported that breaches in computer security cost 163 large U.S. companies and government organizations $124 million in losses last year. And if that number seems low, remember that only a small fraction of companies report security breaches. No one likes to advertise their vulnerability. It makes stockholders nervous.

No one is immune. The Pentagon reportedly detects as many as 100 hacks on its systems in a typical week. A NATO spokesperson told reporters in late March that as the conflict in the Balkans escalated, Yugoslav hackers assaulted the

PHOTO BY GREG GILLIS

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alliance's Web site with a barrage of viruses and unwanted e-mails, trying (and on occasion succeeding) to bring down the site. The Associated Press reported in September 1998 that a computer expert hacked into telecommunications company US West Inc.'s computers, wreaking significant havoc. Also that September, *The New York Times* Web site was attacked. The situation is becoming so serious that President Clinton proposed earlier this year that $1.46 billion be budgeted in 2000 to protect the country's critical infrastructure and that government agencies recruit a "Cyber Corps" of security experts to respond to future computer crises. This proposal, Clinton claimed, increases government spending on this issue by 40 percent.

"Cyberspace is America's Achilles' heel," says Mark Gembicki, a security expert and chief technology officer at WarRoom Research Inc., a security and intelligence consultancy based in Annapolis, Md. "Corporate America is now borderless, and cyberterrorism is a very real, serious threat to our economy."

When the now-infamous Melissa virus struck in late March, it became the most prolific computer bug to date, clogging the e-mail files of companies all over the world. In the end, Melissa turned out to be more of an annoyance than a catastrophe. But it was bad enough that some companies, including Microsoft Corp. and Lucent Technologies Inc., had to shut down their e-mail systems as they tried to swat the bug. No one can say how much business or how much money was lost during the downtime.

And Melissa could have been worse. "Much tougher [viruses] are on the way," says Steve Hunt, an analyst at Giga Information Group Inc., a consultancy based in Cambridge, Mass. "Companies need to know this is the just the beginning."

Some already do. Oliver Butler, CIO and vice president of Commonwealth Edison Co., the Chicago-based electric utility, says that as companies put more of their eggs in the technology basket, viewing e-commerce, for example, as a route to competitive advantage, they assume a greater degree of risk, exposing precious corporate data to danger. Therefore, information security becomes critical. But while an explosion in new security technologies promises to help corporations protect that precious data, one factor can frustrate even the most sophisticated security systems: the people who use or, more to the point, don't use them.

Dazed and Confused

U.S. DEPARTMENTS TODAY FEEL obliged to demand increasingly stringent security practices within the enterprise. But from where the employees sit, complex security procedures interfere with productivity, efficiency and ultimately profitability. Multiple logons and passwords that must change frequently and must be too complex for hackers to guess—and are therefore difficult for employees to remember—are

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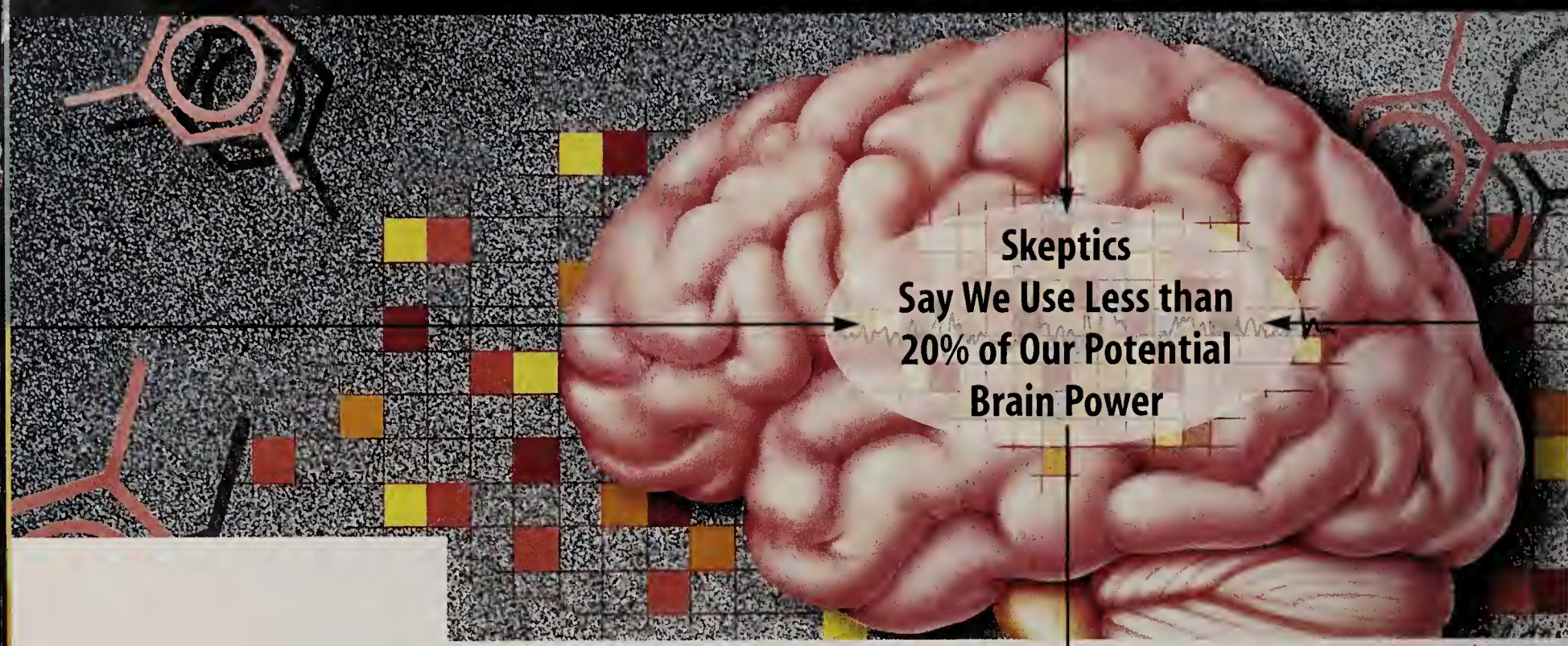

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Scary Numbers

SECURITY EXPERTS SAY THERE are some 40,000 computer viruses and other malicious logic programs in existence and more on the way. Earlier this month, WarRoom Research Inc., a security and intelligence consultancy in Annapolis, Md., released a study of 320 Fortune 500 companies spanning 27 industries. Among its findings:

- 214 companies, or 67 percent, reported some level of confirmed hacking activity in 1997 and 1998
- 103, or more than 48 percent, cited incidents linked to both competitors or unknown, outside adversaries
- 87, or more than 40 percent, reported incidents linked to internal employees or consultants in trusted positions
- 69, or more than 32 percent, reported breaches from competitors in both domestic and foreign markets

becoming the norm. In the interest of security, IS departments are severely restricting e-mail use, limiting and monitoring communications and often banning the exchange of attachments. They are also installing more and more robust firewalls around their extranets. But limiting e-mail limits communication. And extranet firewalls slow network traffic as the software inspects content and authenticates users. The proliferation of small devices such as personal digital assistants and downloaded software applications create another flashpoint between IS departments and the people they are supposed to serve. Throw in the enterprise partners and customers who are clamoring for access and service via the Web and the picture for information security management becomes truly complicated.

"As networks become more open-ended, IT has to be even more concerned that proprietary information can now be accessed by unknown individuals," Giga's Hunt says. "IT is taking more of a big brother attitude and this is frustrating users."

Many of the battles, according to Hunt, revolve around decisions over access. "The managers are saying to IT, 'Who are you to say who has access to that data?' and IT is saying, 'We have to maintain control to keep the company safe.'" And a lockdown on security doesn't frustrate just internal users. Ted Julian, an analyst with Forrester Research Inc., the Cambridge, Mass.-based consultancy, says that it can also stand in the way of the business units' desire to bond electronically with customers, partners and suppliers. While IT and the business go around and around over whether a supply chain link with a partner can be adequately secured, that link can evaporate as the partner ties the knot with an access-friendlier company.

Chevron Corp. is currently struggling with access issues, according to Alan Nunns, manager of information technology for Chevron Overseas Petroleum

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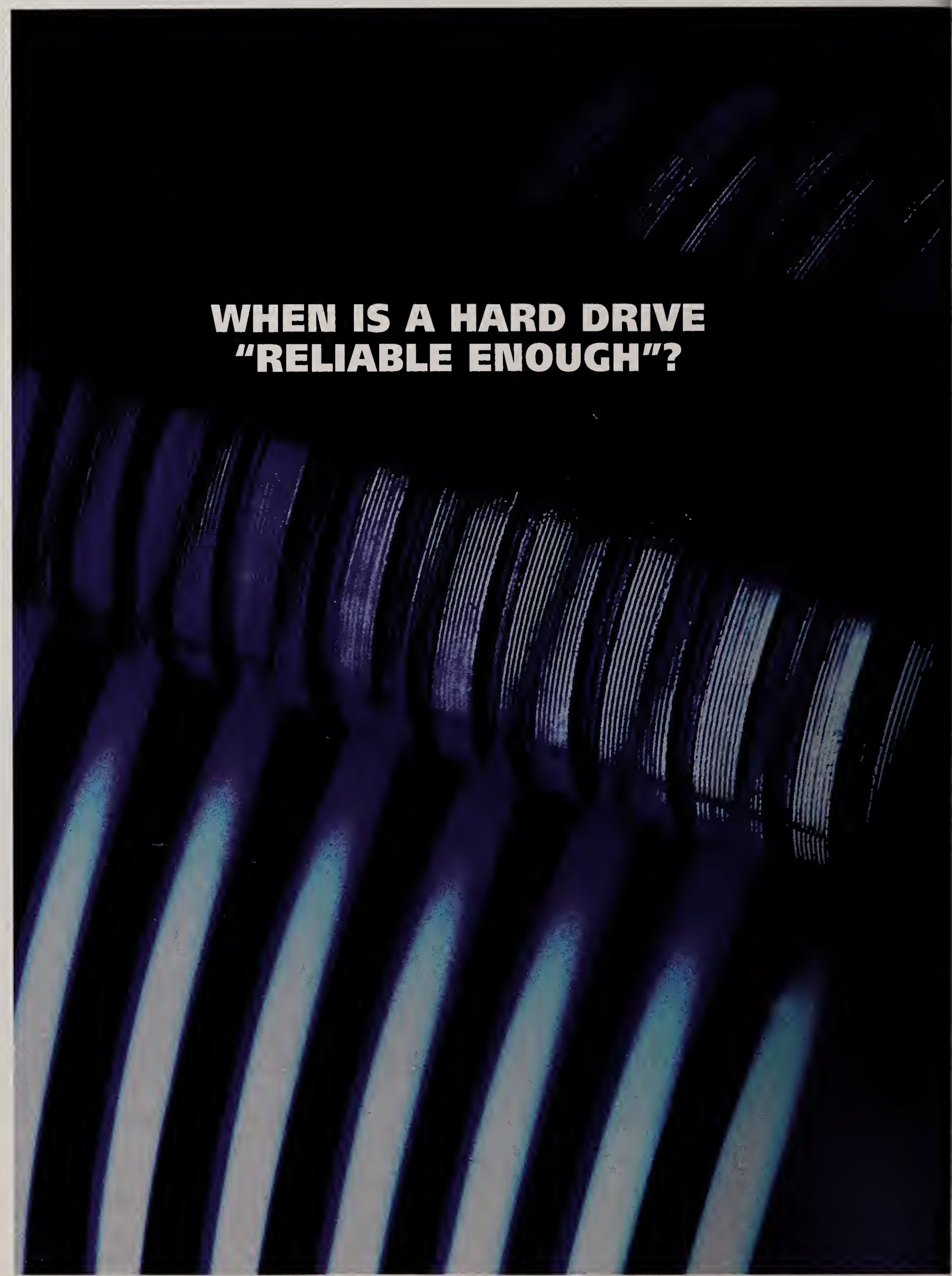

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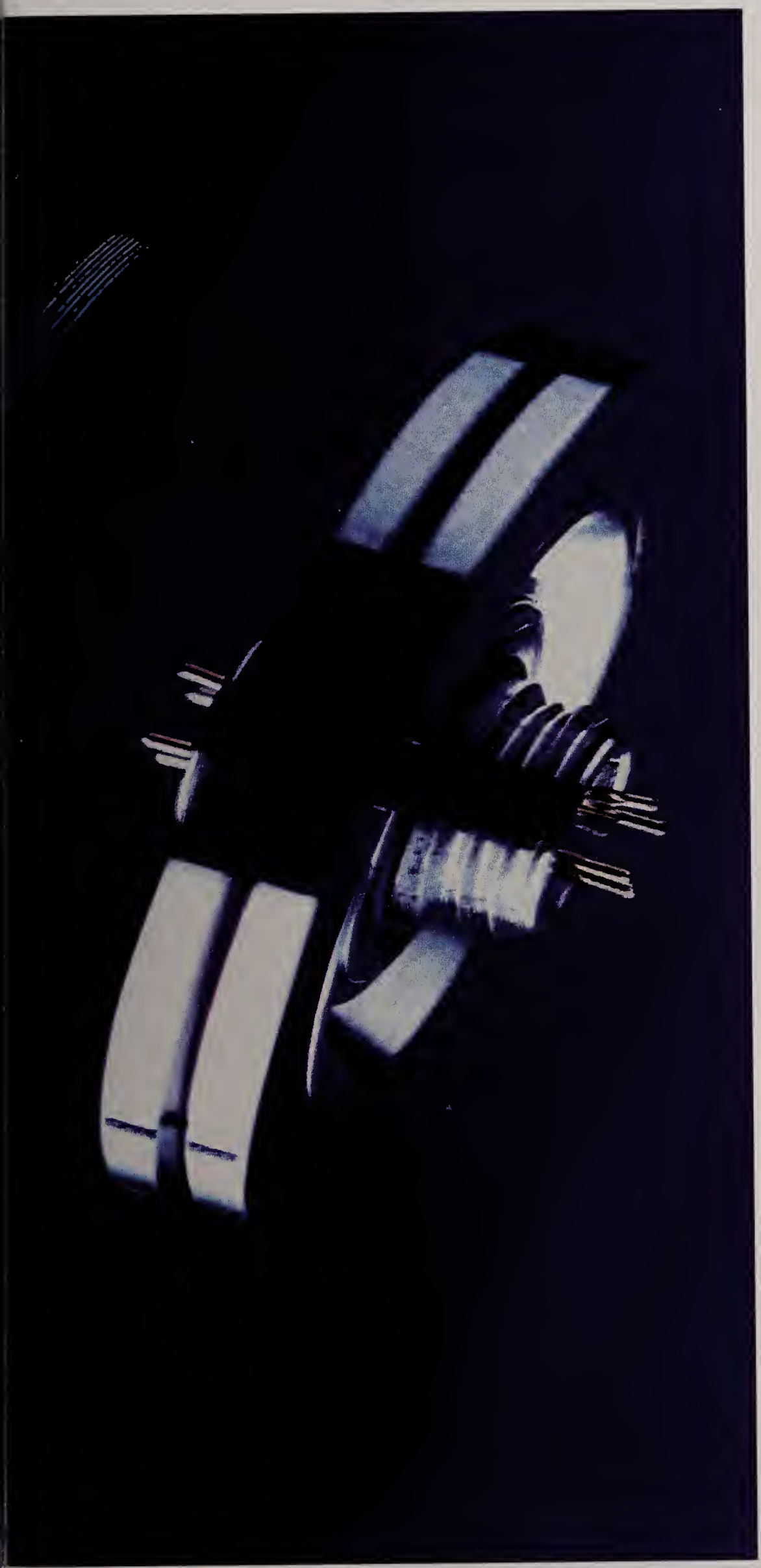

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Co. in San Ramon, Calif. In his current role, Nunns serves as a liaison between IT and the business side. He used to work in the geology division "and so as an internal customer, I understand the user point of view." He says the company is tackling the issue of how to open up electronic links to such partners as its overseas oil producers. "It's important for our business but raises real security questions," says Nunns. "This is a tough one for IT and business to agree on."

The route to resolving the conflict, security experts say, is for everyone in the enterprise to view security as a strategic imperative with shared responsibility between IT and business. Getting user buy-in is absolutely key. The stiffest encryption software will not work worth a damn if the laptop user disables it before launching a dial-in session to the home office. But getting to that ideal state of mutual accountability is not always easy.

Our Lips Are Sealed

TWO YEARS AGO, AS CHEVRON was increasingly conducting business on its network computing infrastructure, including its intranet and the Internet, a PricewaterhouseCoopers audit concluded that the strategy increased the company's vulnerability to attack. In response, Chevron mounted an initiative to give information protection and security a higher profile within the company.

According to Sheila Taylor, general manager of IT shared services for the Chevron Information Technology Co., also in San Ramon, business users were involved right from the start in any policy changes. Which had a not-entirely unexpected side benefit. "The major change for us in managing IT in general has been taking it from being a separate entity to working very hard at integrating business and technology together," Taylor says. "The security piece was a major part of that."

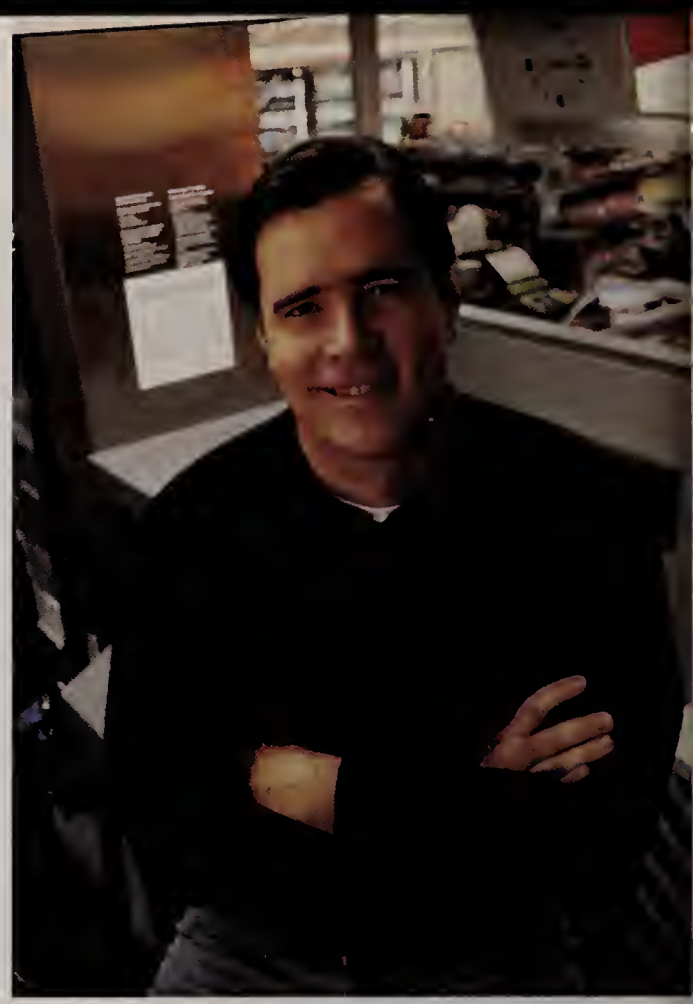
Rick McKillop, directory management and information protection supervisor at Chevron Information Technology, says that at the beginning of last year Chevron's business leaders called for a review of the company's security policies. Four groups of IT and business staffers were formed, with varying levels of membership and authority. All four discuss how to improve security without degrading network performance and productivity, McKillop says. "Since we've bought into the distributed computing environment and as we send more and more critical applications over this environment, we have to make sure it's secure and robust," he says.

Before the advent of the forums, security had been seen as largely IT's problem, according to Dennis Bourque, Chevron Information Technology's information protection and security planner. Now, says Bourque, "We're saying to the business side, security can't just be shoved onto IT; we are here to provide counsel and guidance, but you own the data—it is your responsibility to take care of it." And because the two sides are working together, business is taking the importance of information protection to heart while IT is beginning to understand that policies that don't take business needs into account will fail.

The profile and the status of security at Chevron got another boost last year when Taylor was named corporate champion of information protection. In her new role, Taylor reports directly to the chief technology officer on security issues. Butler at Commonwealth Edison works with a corporate communications staffer who is responsible for explaining changes in security policies to workers. Butler meets regularly with his information security officer and the corporate communications representative to hammer out what needs to be said and who needs to hear it. "We know that we can't bombard them with all sorts of e-mails or things on every little security issue, or they will start ignoring them altogether," Butler says.

Steve Sommer, CIO at Hughes, Hubbard & Reed LLP, a New York City law firm, says he relies on the "embarrassment factor" in getting his 1,100 users worldwide to comply with security measures. "In the law," he says, "everything is your reputation for discretion and protecting client confidentiality. I tell them, wouldn't you be embarrassed if something got out?" But he also combats the huge apathy he encounters by having a simple, standardized computing platform.

"These are lawyers who don't want to be educated on how important security has become, but I just persist in getting out our policy and reminding them of it," says Sommer. Sommer says he also has installed Windows NT on laptops and desktops. NT enables IT to control how users change existing files and add new ones in addition to giving network administrators the power to track and monitor user activity.



Collaboration on security issues can fuel a shared understanding, says Chevron's Dennis Bourque.

Chevron's Rick McKillop and Sheila Taylor know that IS and business units must drive information protection policies together.

PHOTOS BY KENT HANSON

First there was the era of information systems. And with it all the challenges of the glass house —mainframe computing.

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It Works If You Work It

SOME SECURITY ANALYSTS SEE improving technologies as the way to ensure user buy-in. When users don't comply with security standards, says Butler, "It's often the company's fault for having confusing or difficult-to-follow standards." Policies should be clearly stated, consequences for flouting them should be laid out and enforced.

Forrester's Julian says it is very important that security measures be completely transparent to the user. Forrester counsels companies to prioritize usability over restrictive security measures that limit access. Digital certificates—smart cards that contain embedded authorization information—are an example of a technology that emphasizes usability by allowing people to move from application to application without having to reenter passwords or IDs. (See "Sign on the Digital Line," *CIO* Section 2, June 1, 1999.)

Another hope for simplifying security measures is single sign-on (SSO) technology. With SSO, users are required to identify themselves only once before simultaneously accessing several different systems. Currently, the average employee must sign on to somewhere between five and eight systems every day, each requiring a separate password. In addition, most passwords must be changed every 30 to 90 days. To keep up, people often plaster their cubicle desks and walls with sticky notes. "Anyone walking through the typical Fortune 500 office today could just poke a head into a cube, grab a password and be in," says Giga's Hunt.

Of course, when the stickies get lost and the passwords are forgotten, the phones at the help desk start ringing and IT support costs go up. SSOs could be the cure for this disease.

Ask the Expert

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Have a question about security? You can pose it to **Mark Gembicki**, CTO of WarRoom Research Inc., a consultancy based in Annapolis, Md. From now until July 31, Gembicki will be available at *asktheexpert@cio.com* to offer insight and advice on the challenges of protecting the enterprise from hackers and other security breaches.

Risky Business

THE FIRST YEAR OF Chevron's security effort was primarily spent reacting to various security emergencies, such as the onslaught of Melissa, Bourque says. The company is now trying to be more proactive, devising a security compliance policy that would cut across its worldwide operations.

A key part of any company's strategic planning in the security arena is risk assessment. An absolutely secure system is one that's never used. Everything after that assumes a degree of risk.

"We have considerable work to do in this area," says Chevron's Taylor. "For instance, will we mandate that every executive who uses a laptop must use encryption technology? Do we put that technology on the hard drive? This introduces a real annoyance factor to users on the road—it slows down their access. So we must weigh these things," she says.

Weighing usability against the risk of data loss is a continuing exercise. For instance, Forrester argues that companies might consider not putting encryption technology on the hard drives of its sales reps' laptops. Typically, most data on a laptop simply isn't that sensitive; it's worth assessing the risk that the information could be compromised before routinely installing encryption.

Another issue companies need to address is how much money to budget for security and how many people should be dedicated to security matters. According to a study by GartnerGroup Inc., most companies now spend less than 1 percent of their operating budgets on security, whereas that figure should be closer to between 5 percent and 8 percent.

But building a competent security staff and buying the latest and greatest security technology can be very expensive. So for some, the answer is to outsource. When Len Carella, director of information technology at *Newsweek* in New York City, decided to revamp the magazine's security policies, he turned to Pilot Network Services Inc., an Internet security provider based in Alameda, Calif. Pilot maintains *Newsweek*'s external communications through two of its network security centers. Virus scanning, user authentication, and firewall and proxy server maintenance—all are provided by Pilot, which sits like a watchful spider at the center of *Newsweek*'s Web.

For *Newsweek's* Len Carella, outsourcing security provides peace of mind.

Some information protection analysts argue that ceding security to a third party simply adds another layer of risk. But, Carella says, "We just didn't want to spend the money and resources to do it ourselves. This [outsourcing arrangement] buys me peace of mind."

Finding peace of mind will not be easy in the days to come. At this moment, very smart, very ruthless people are writing ever-more sinister viruses and devising new, sneakier ways to circumvent security measures of every kind. There will be no magic bullet, no simple solution.

Get ready. It's going to be a bumpy ride. CIO

Senior Writer Mindy Blodgett can be reached at mblodgett@cio.com.

PHOTO BY KENT HANSON

The project portfolio backlog has IT executives struggling to determine which projects now take priority. Companies are racing to implement postponed projects such as e-business and ERP implementations to increase revenue and stay ahead of the competition. ABT Corporation's Results Management™ Suite helps you strategically manage your project portfolio, empowering your IT department to be your company's competitive advantage.

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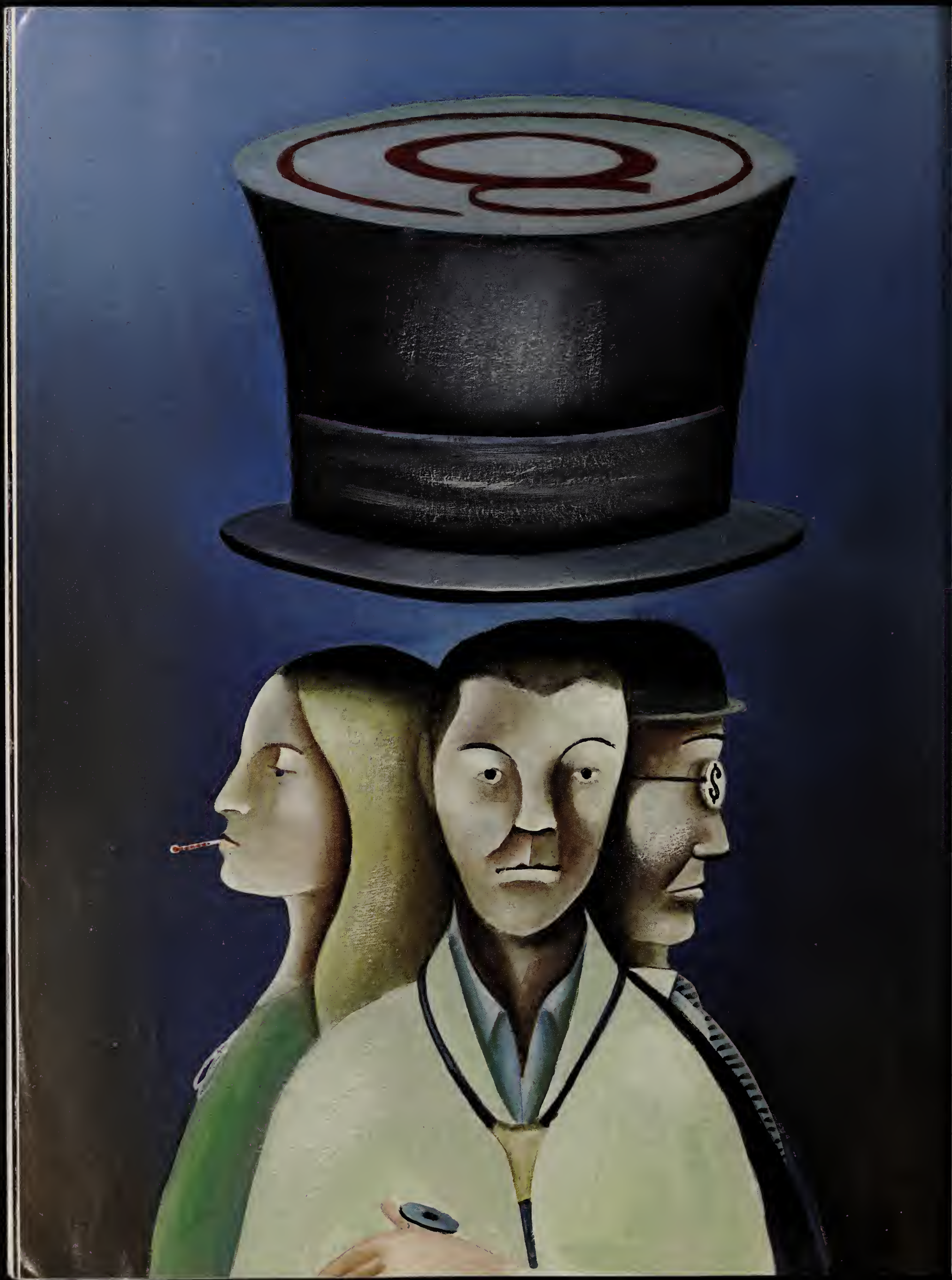

Confused? Losing things?
Having difficulty communicating?
Those are all symptoms of what's become
an epidemic in the health-care industry.
The Internet may be a cure.

BY CHRISTOPHER KOCH

DIAGNOSIS: INFORMATION SICKNESS

To witness the paradox of health-care technology, take a stroll down the hallway of any hospital or medical center with Dr. Michael Hodgkins.

"I'm always struck by the contrast. I walk past an exam room and see the latest, greatest diagnostic tools, embedded with the most sophisticated computer chips available, and outside in the hallway there's a clerk pushing a shopping cart filled with paper," says Hodgkins, executive vice president and chief medical officer of Kinetra LLC, a Golden, Colo.-based health-care network services company.

While health care's diagnostic technologies continue to advance at an astounding pace, the squeaky wheels on those shopping carts full of medical records, lab reports and insurance forms just keep on squeaking. "Information exchange between doctors, insurers, labs, pharmacies and hospitals is still mostly [done] on paper," says Hodgkins. And in a $1.2 trillion industry, replacing the shopping carts with reliable, secure, high-speed computerized transactions could mean savings in the billions. Not to mention the human benefits of speeding up information flow in an industry where timing is everything and errors can have costs not only in dollars but in lives.

Why hasn't it happened yet? "If you view health care as a process, then it is the most complicated process that exists," says John P. Glaser, vice president and CIO of Partners HealthCare System Inc. in Boston. There are more than 10,000 known diseases, 3,000 drugs to treat them, 300 different radiology procedures and 1,100 available lab tests, according to research at Brigham and Women's Hospital in Boston.

Reader ROI

READ THIS ARTICLE TO LEARN

- Where the solution to your integration problem lies
- Why the health-care industry finds information sharing difficult
- How connectivity middlemen build private networks for providers

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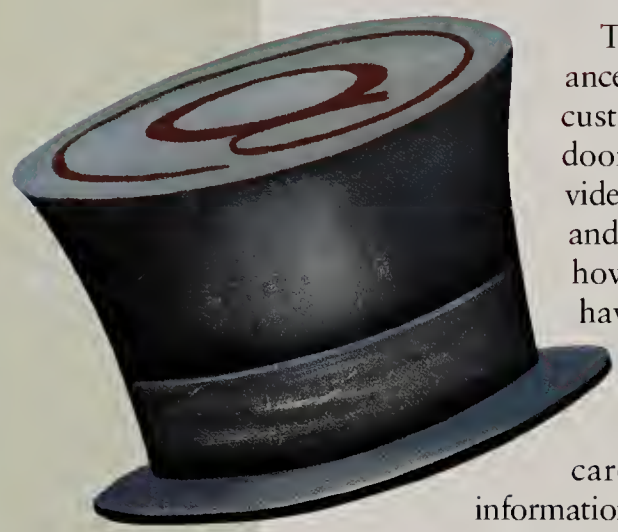

Throw in the convoluted insurance reimbursement process where customers (patients) walk out the door without paying, leaving providers to figure out who should pay and insurance companies to decide how much they will pay, and you have information sickness.

All this helps explain why Lois Gargotto has been toiling for most of her career to integrate health-care information systems for Humana Inc., one of the country's largest managed-care companies. And after some 20 years, she's still not done. In fact, she acknowledges that she may never be done. Today about 58 percent of the different providers with which Humana does business on a regular basis can exchange information about medical services and insurance coverage with Humana's systems. But Gargotto, who is vice president of systems development, says that connecting the remaining 42 percent may just not be worth the time and expense.

"If you're going to get poorly formatted transactions with poorly formatted codes, exchanging them electronically doesn't do anybody a whole lot of good," she says.

Hence, the paper-filled shopping carts in the hallway.

The integration problem in health care is so bad—and the gains to be had by solving it so great—that it may be the only industry with its own connectivity middlemen, integrators that link the different entities in health care into private networks and then charge those entities to access the network and share information. Companies like Kinetra and Santa Clara, Calif.-based Healtheon Corp. crawl under the hoods of hundreds of different computer systems at insurance companies, hospitals, X-ray and lab providers, and doctors' practice groups to translate the different codes and formats they use into terms that all the other computers linked to the network can understand.

Building these networks is incredibly slow and labor intensive for both the middlemen and their clients. It may take weeks or even months to build a single computer interface between a customer and a connectivity provider's network.

But something new is happening that promises to cut the Gordian knot of health-care systems integration and change the nature of the competition between integrators from delivery mechanism to information payoff. It's called (no surprise) the Internet.

THE PROMISED LAND AWAITS...AND WAITS

In an industry that cannot agree on what a cold is, let alone the format for sending the diagnosis from doctor to hospital to insurer, the Internet is a standard that everyone could embrace. It is already causing a reshuffling among integration middlemen, with dozens of Internet-based services springing up to serve local and national markets, according to Hodgkins.

Yet even the Internet faces a roadblock on the path to ubiquity. Many offices have their own customized, proprietary computer systems, known as practice management systems, that were built long before the Internet came into common use. Less than 28 percent of these systems in use today are capable of accessing the Internet, says Vinson J. Hudson, president of Jewson Enterprises, a Menlo Park, Calif.-based health information systems research company.

Though there has been some consolidation in the market recently (IDX Systems Corp. of Burlington, Vt., has the largest share of the market, with $322 million in revenues in 1998, according to Hudson), most of these systems are rats' nests of outdated technology that require custom software even to dial into a modern network. And Hodgkins doesn't see doctors upgrading or switching from these systems anytime soon—unless they run into the Y2K wall. Getting rid of expensive practice management systems simply to get a new Internet-enabled system doesn't offer much of a lure for doctors, he says.

Indeed, in the short term, "It's a possibility that costs will increase with the Internet rather than decrease" because of the need to buy new computers, says Terry Sherb, CIO of California Healthcare Association, a health-care providers' membership organization based in Sacramento. "So if our members are going to start exchanging secure data over the Internet, then there needs to be a good ROI that doesn't take additional money out of providers' pockets and put it in someone else's."

> "There's a lot of value to paper—that's why it has lasted SO damned long."
>
> –John Glaser, CIO, Partners HealthCare System

But doctors are not the only constituency affected by the Internet. Patients may make the Internet trade-up decision for them. Traditionally reticent in the debate over health care, patients are now speaking loud and clear over the Internet (see "Patient Power," Page 56).

As patients begin to demand more health information online, the pressure to provide secure access to specific patient information will also increase. And that means someone is going to have to reach back into all the old legacy systems of insurers, pharmacies, labs, hospitals and doctors' offices and grab that information. This is the hard part, and it is the foundation of Kinetra's and Healtheon's businesses. For health-care companies lacking the IS staff or the expertise to do the work themselves, the middlemen offer the last, best hope—for today, anyway.

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"TAKE THE INTERNET AND CALL ME IN THE MORNING"

The power players among the connectivity vendors are those that have large private networks customers can dial into through private connections. What Healtheon's and Kinetra's customers want are networks connected to the insurance companies, labs and hospitals they do business with as well as the software functionality of the network (for example, online claims reimbursement or checking lab results), or some combination of the two. Healtheon and Kinetra have become two of the largest middlemen in the industry mostly by acquiring small, localized private network companies and gluing them together into a national service. But there is still no single network middleman, large or small, that offers the full range of information sharing services that a typical hospital might need; most vendors focus on a particular process, like claims reimbursement or lab results. Most hospitals have multiple connectivity providers, though companies like Kinetra and Healtheon are rapidly closing the functionality gaps in their systems. For example, at press time, Healtheon planned to merge with WebMD Inc., a medical information Web site for doctors and patients.

Increasing the power and reach of their networks should become easier as Kinetra and Healtheon shift toward Internet-based application development and as more customers' systems become Internet-ready. "Right now, it's expensive for us to install our service in a doctor's office," says Bob Ashworth, Kinetra's executive vice president and chief technology officer. "We have to send technicians to the office and install software that matches the many different types of practice management systems out there. Once we're Internet enabled at the doctor's office, much of that [trouble] will go away."

The Internet has already made Ashworth's life easier back at Kinetra's headquarters. "We've converted our network to a TCP/IP backbone, and we have converted to a single database and a single programming language, Java," he says. "That has really allowed us to standardize our own environment."

Patient Power

Armed with information gathered online, health-care consumers are taking charge

PATIENTS ARE OUT OF PATIENCE. The doctor's office, never a model of efficiency, is becoming intolerable. Waiting rooms increasingly live up to their names. And when patients finally see the doctor (for three or four minutes), they're often left with not much more than a prescription and a bunch of questions they forgot to ask.

That's why so many people are going to the Internet for help. Approximately 40 percent of the search queries submitted to Web sites like Yahoo, Excite and AOL are for health-care information, estimates Michael Davis, a research director in health care for GartnerGroup Inc., a Stamford, Conn.-based consultancy. "Look at what's happening to stockbrokers and car dealerships on the Internet, and you can get a glimpse of what's going to happen to health care," he says. In other words, instead of dropping in, patients will be logging on. And they'll be demanding more information and better service.

Health-care information Web sites directed at patients, like *drkoop.com* (presided over by Dr. C. Everett Koop, former U.S. Surgeon General), are growing fast. Consumers are already buying prescription drugs online. "I have patients who have learned about a new treatment or a new drug before I have," says Charles Saunders, vice president of strategic planning and medical director for Healtheon Corp., a Santa Clara, Calif.-based health-care e-commerce company.

"There is an incredible increase in consumerism in health care," says Gordon Heinrich, vice president of Web services for First Consulting Group Inc., a health-care consulting and technology management company based in Long Beach, Calif. "I think this will drive more efficiency into the health-care supply chain. You'll be able to post your medical record on the Internet on a secure site, and control the information in it," says Heinrich. "Then you could make it available to doctors or others when you want to." (In February, *drkoop.com* announced plans to do just that sometime this summer.) Giving consumers more control over their health-care records can only improve the messy redundancy and inaccuracy of record keeping today, adds Heinrich.

Not all doctors are happy about ceding more control to patients, however. They don't like the idea of patients showing up at their offices with fistfuls of printouts from the Internet because the information can often be misinterpreted or downright wrong. But doctors still have control over the relationship, notes Saunders. "Physicians are still going to be the ones prescribing the drugs and doing the treatment," he says. "Regardless, doctors may as well get used to it [better informed patients] because it's going to happen whether they like it or not." *–C. Koch*

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MDs want to customize technology for the common good

DR. PETE DYSERT, CHIEF MEDICAL INFORMATION officer for Baylor Health Care System, an integrated health-care organization in Dallas, has a sign on his office wall that depicts a file clerk with the infamous red circle and slash—the international "no" symbol—over it. Dysert is convinced that information technology in health care today does little more than make file clerks out of doctors. "Using IT effectively in health care shouldn't be about capturing a charge for a bill; it should be about capturing information to make a better clinical decision," he says.

Dysert isn't just a typical IS basher. He's trying to do something about the lack of empathy between doctors and their computer systems. His approach is part Yahoo progenitor Jerry Yang and part United Mine Worker saint and CIO (as in AFL-CIO) founder John L. Lewis. In partnership with Bob Pickton, senior vice president and CIO at Baylor, Dysert is working with Healtheon Corp. to develop an Internet portal service for physicians that fits the ways doctors do their jobs—"a sort of 'My Yahoo' for doctors," says Dysert. To get insurance providers, X-ray labs and other entities interested in hooking into those services, Dysert is organizing a nonprofit group of the 4,800 physicians in the Baylor and two other Dallas-area health plans that will own the as-yet-unnamed portal service (which is now being piloted with a handful of physicians) and bargain collectively with insurers and other entities that want access to the doctors.

"Physicians have traditionally organized themselves around reimbursement," says Dysert. "We are organizing around reengineering the delivery of health care by using technology." With help from Healtheon, a Santa Clara, Calif.-based health-care e-commerce company, the group will develop information-sharing standards that insurers and others will have to adhere to if they want to do business with the doctors in the group. "If they don't adhere to the standards, we won't sign the contract," says Dysert.

The "role-centric" network, as Dysert calls it, will allow nurses, administrators and technicians to develop their own secure home pages that provide them with services such as appointment scheduling, insurance authorizations or lab test reporting. The goal is to improve information sharing by reducing the number of phone calls and the amount of paper floating around the office. "Instead of rifling through stacks of prescriptions, the doctor could click on a hyperlink and the prescription would be automatically sent," says Dysert. With insurance companies spending around $2 to process a typical patient referral request over the phone, there is a vested interest for everyone in health care to put services online, where the cost of a transaction could be one-tenth to one-fiftieth that of a phone-based transaction, according to Charles Saunders, vice president of strategic planning and medical director for Healtheon.

Pickton sees the goal clearly. "The more services we offer that make the phone system seem less efficient, the better we will be doing," he says. *–C. Koch*

But Ashworth isn't ready yet to offer a complete endorsement of the Internet. Access to Kinetra's network is being converted to Internet technologies from old fashioned, private dial-up connections (larger customers get dedicated connections to the Kinetra network), but Kinetra's clients never actually touch the public Internet, just Kinetra's private one.

"People can access us through a Web browser now, but they're still dialing us up through the 30 different network nodes we have around the country, not the public Internet," says Ashworth. "Our approach is to eliminate the frailties of the public Internet, where reliability and availability are not always what we'd like them to be." Not coincidentally, Kinetra has a huge investment in its private network, which is being managed by Electronic Data Systems (EDS) Corp. in a huge server farm in EDS's Rochelle Park, N.J., information processing center. And EDS (which owns Kinetra in a joint venture with pharmaceutical giant Eli Lilly and Co.) will be investing its integration skills to co-develop new transaction services with Kinetra, possibly online claims reimbursement, electronic patient referrals and patient insurance eligibility,

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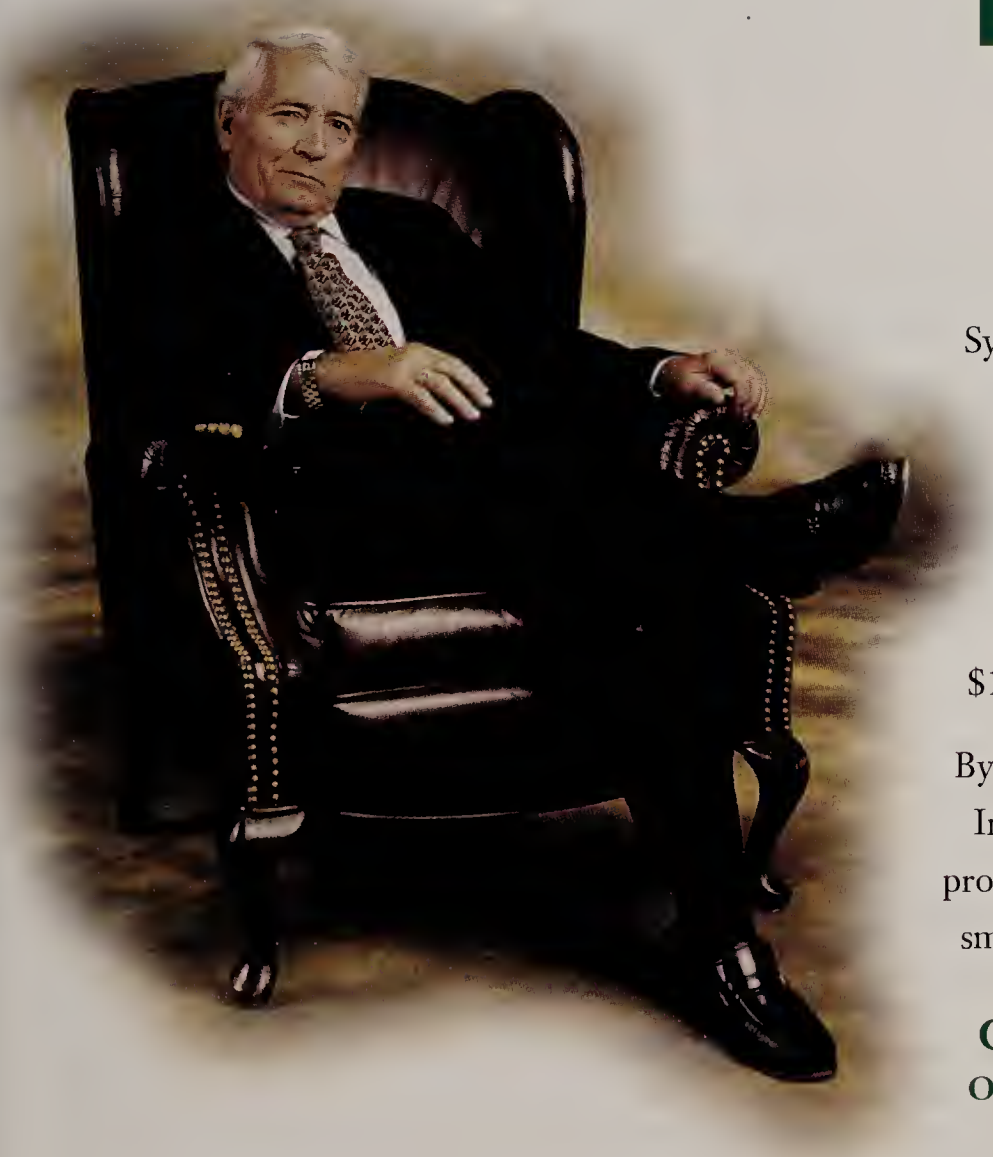

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according to Paul Tavano, a vice president in the EDS Health Care business unit.

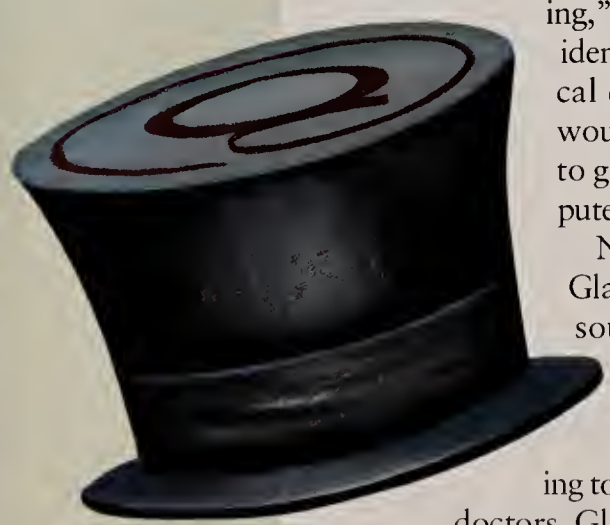
Healtheon, formed by Netscape Communications Corp. founder Jim Clark, is more bullish on the Internet in the short term and distinguishes itself from Kinetra through its Web-only services, such as one that allows companies to update their employees' health information from a browser. Yet Kinetra executives gleefully point out that for all its Internet efforts, Healtheon accrued most of its $49 million in earnings last year from transactions over its private network lines, not the Internet. Wall Street analysts nervously point out that Healtheon posted a $54 million loss last year during a frenzy of building and acquisition, while WebMD also bled—taking a $7.8 million loss against just under $100,000 in revenues, according to industry watchers. Kinetra, like WebMD, is privately held and does not reveal its numbers.

WHY DOCTORS DON'T LIKE COMPUTERS

Regardless of whether the services reach their offices through the Internet or a private network, most doctors don't see integration as brightening their days. "Our members would like to see these systems play a more effective role in helping them do their day-to-day jobs if they are really going to take hold," says California Healthcare Association's Sherb.

That lack of excitement is widespread among analysts too. "No vendor has designed a system that has been totally embraced by the physician community," says Michael Davis, research director for health care at GartnerGroup Inc., a Stamford, Conn.-based consultancy. "No one has designed a good GUI, and the functions don't match how physicians do their job." (See "Doctors of the World, Unite!" Page 58 .)

Digitizing an already byzantine bureaucracy has not given doctors more time with patients. "More and more of doctors' time is administrative rather than actual care giving," says Charles Saunders, vice president of strategic planning and medical director for Healtheon. "They would view it as an enormous benefit to give time back to them, but computers haven't done that."



No one knows that better than Glaser of Partners HealthCare, who sounds evangelical when he says, "Going from paper to computer isn't the point. Making care better is the point." But in trying to make computers work better for doctors, Glaser and his CIO peers in health care are faced with a moving target.

"Doctors walk around a lot," he says. "They bop back and forth between exam rooms, and they have a three- to four-minute window for gathering information about a patient and making a decision. Unless they have a computer wherever they are, it's easier for them to just jot down notes on paper. There's a lot of value to paper—that's why it has lasted so damned long."

> "No vendor has designed a system that has been totally embraced by the physician community."
>
> –Michael Davis, Research Director for Health Care, GartnerGroup

Glaser sees doctors getting interested in information integration but says there won't be significant interest until they can take the computer with them and have their hands free. "Things like very cheap, robust voice recognition and headsets that project a computer screen onto your retina—those will help," says Glaser.

Until that day comes, Glaser's IS group eschews the connectivity vendors in favor of doing it themselves. "We benefit from having so many entities [to connect with] concentrated around us in the Boston area," he says. Glaser is developing a Web-based extranet service for Partners' doctors that will offer the same kind of functionality as the connectivity providers offer. Demonstrating value to doctors is difficult, he says, but physicians will be more apt to use the service as they begin to see more value in the Internet itself.

For health-care information integration veterans like Gargotto and Glaser, anything that pushes the industry toward standard ways of communicating and exchanging information is welcome. "The standards will continue to evolve, and the push to reduce administrative costs will eventually convince people to let go of some of the unique requirements [for example, idiosyncratic diagnostic codes] in information transactions," says Gargotto. "But the reality in health care is that for the foreseeable future, information transactions will continue to be a mix of standardized, proprietary and 'whatever you can get.'"

This reality troubles the connectivity middlemen too. "We're competing based on the quality of information delivery mechanisms," says Kinetra's Ashworth. "We should standardize the delivery mechanism so that the competition can be moved to the next level, where the quality of the information itself is the competitive advantage. The Internet will level the playing field so we can do that." CIO

Senior Editor Christopher Koch can be reached via e-mail at ckoch@cio.com.

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CASE STUDY, PART 3

Stranger *in a Strange Land*

CaliMed's CIO has hit a wall in executing his turnaround strategies. What's he missing?

BY RICHARD PASTORE

IN THE FIRST TWO INSTALLMENTS OF THIS THREE-PART LEADERSHIP CASE STUDY, fictional CIO David Shepard suddenly found himself with a new boss, a new title and a new mission: to lead CaliMed Inc., his beleaguered pharmaceutical firm, through a turnaround using IT as a competitive weapon. Uneasy with the new role of enterprise leader, Shepard called on three veteran leaders to seek coaching on building relationships with the executive team and defusing political land mines (see "Stranger in a Strange Land," Part 1, *CIO* Section 1, June 15, 1999). In part two, Shepard's coaches helped him focus his knowledge of IT and business process to develop a strategic plan (see "Stranger in a Strange Land," Part 2, *CIO* Section 1, July 1, 1999). In this conclusion, Shepard must tap his new leadership skills to mobilize CaliMed's resources to put the plan into action.

Reader ROI

This feature is part of *CIO*'s Summer Leadership Curriculum, which began with the June 15, 1999, issue.

Read this case study conclusion to learn how to mobilize resources, including

- Boosting team members' passion and motivation
- Leveraging alliances to do more faster
- Getting tough with recalcitrant executive peers

ILLUSTRATIONS BY MICHAEL KLEIN

AUG
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GOALS

Enter the Executioner?

DAVID SHEPARD BORE DOWN SO hard, his pencil broke. He'd been trying to write an implementation checklist for his strategic initiatives, aligned with the business goals set forth by CaliMed's new CEO, Maureen Carleton, but every time he started to write, he found a new roadblock—and broke another pencil.

Shepard stared at his list:

1. *Finish and market patient-record network.* CaliMed's partnership with hospitals to develop treatment protocols had led nowhere and was now being dissolved. But the treatment-data network it had built to facilitate the partnership was a technology gem, and CaliMed had decided to accept consulting firm McEarnst & Co.'s offer to jointly develop a secure extranet component that would link the network to doctors in private practices. The resulting technology would then be commercially marketed, with CaliMed's share of the earnings funneled into Shepard's development budget.

2. *Develop Home Remedy Consult Web sales channel.* CaliMed planned to create a Web-based direct sales channel for the company's expanding line of homeopathic remedies. Consumers would use the site, known as Home Remedy Consult, for order-taking, product education and managing their own patient case record. Shepard had imported parts of this concept from Amazon.com and its customer-profiling system. Pete Lucibelli, the typically uncooperative head of sales and marketing, had bought into the idea mainly because it came from Amazon.com Inc., a company he respected.

3. *Aid the integration of acquired biotech companies.* The R&D units of the acquired companies would be integrated with CaliMed's via a knowledge-sharing intranet that was already in place. The acquired companies' redundant back-office systems would be phased out quickly.

4. *Partner with Aurora Technologies to create a modeling and simulation tool for new product development.* The simulation tool would speed drug development 30 percent to 40 percent, giving CaliMed an edge on even its fastest competitors. Shepard had already gotten a commitment from Aurora and the executive team.

It all sounded great, but getting from paper to execution was proving difficult. For starters, after weeks of research, the first two biotech companies targeted for acquisition accepted tender offers from CaliMed's rivals. Shepard's integration team was devastated.

Next, the CIO of a prospective buyer of CaliMed's patient-record network technology had asked to meet with Shepard personally and see a demo using her own data. That didn't seem a good use of his time. Why weren't the McEarnst consultants handling that?

Also, Shepard urgently needed to discuss the sim tool project with Aurora. The vendor was clamoring to get started, but Shepard had concerns about governance and resource sharing that he wanted to settle first.

The worst setback happened yesterday. One of his best people, Network Manager Greg Devlin, quit because of frustration with the sales and marketing group. Shepard had assigned Devlin to sales to co-manage the Home Remedy Consult project. But Sales and Marketing Vice President Lucibelli had been dragging his feet for weeks and hadn't even designated a manager for Devlin to work with—so Devlin walked. To top it all off, this morning the CEO's right-hand man, Richard Pepe, had informed Shepard that the CEO was anxious to see a demo of the Home Remedy Web site.

Shepard broke his last pencil and picked up the phone to call his leadership coaches.

Some Assembly Required

Patricia Wallington: Dave, the reason a lot of leaders fail is that they skip the mobilization step and try to go right from the business plan to execution. They don't assemble all the resources they need. They try to deliver what they can with what they've got, but it's never going to be enough to satisfy expectations.

Shepard: I've got five IT people working full time on acquisition integration, another three committed to the extranet development and three—make that two—people on Home Remedy Consult. And I basically replaced myself as day-to-day IT director by promoting someone to that role.

John Cross: It's not just getting your own resources lined up. It's getting the commitments from the line executives.

Wallington: Right, and that's what's different about leadership today. You used to be able to get your part of it done without anybody else getting involved.

Cross: Precisely. Mobilization today is building a wider team of committed people and businesses. When you get to the rocky rapids that you always hit in any project, the quality of how well you ride them out is a function of how your team is working together. Again, this goes back to the importance of relationships that we talked about earlier.

Shepard: I thought I'd accomplished that. The business executives signed off

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on the plan. Some even agreed to cancel projects and reallocate the money to fund it.

Cross: Yes, but this is a journey, not a project. These solutions are increasingly a dynamic set of options, and they will change frequently. You need more than sign-off; you need ownership of the processes and their progress. I like to see the business owning the project processes. Clearly, that hasn't happened in your sales and marketing department.

Christopher Hoenig: I also find that by the time you get to mobilization, and you're talking about lots of specifics, things have changed and people have forgotten what the goal is. It's really important to keep redefining the goal clearly and relentlessly breaking down the problem into components, making sure everyone knows who's accountable and what your risk factors are.

Cross: It sounds overdone, but it's simply governance.

Shepard: I suppose it's not too early to start providing status reports to the executive team. Then they'll see where we're being stalled or undermined, and they'll see who's responsible.

Cross: That's one way to do it. You need a process that keeps the business actively engaged and involved in the progress of the projects. For your executive team, this is part of learning that these things are explorations—we're not laying out specifications that are guaranteed.

Hoenig: You've got to keep them informed. You can convene an investment review board or publish portfolio management reports that show where the money is going and what the returns are so far. I've worked with a client who set up a Web site so that executives could look at the investments on a portfolio or project level and get one-page status reports.

Shepard: In the near term, I've got some specific snags. First, I've got a really bummed-out integration team. The companies they helped target for acquisition were snatched up by our competitors. Now they have to go back to square one.

Cross: Motivation is synonymous with mobilization. This should be a time when clarity of the endgame is paramount and the goals and ambitions are exciting ones. So the competitors beat you to those companies. But that shows you at least picked worthy targets. You have to try again—now you have the added excitement of beating the competition the next time.

Wallington: Specific things you could try would be to make it a campaign, give it a name and give it symbols. Remember to recognize interim goals as the staff meets them.

Hoenig: You've always got to anticipate surprise moves from the competition. Nothing stays still and waits for you to mobilize and execute. Make it clear to everyone that they're in a race.

Cross: Yes, it's like the start of a race, and you want your athletes hyped up to win. To do that, David, you've got to be seen as very active and passionate about the process. That's a key test for a leader.

Shepard: How about very active and stressed out?

Hoenig: Well, the CIO may not be able to generate the excitement all by himself. It may be good to call in the CEO or someone else to help generate it.

Wallington: That's true. If you're not an inspirational or visionary leader—and I'm not saying you're not, but clearly there are some people who are not going to be—then how do you get that kind of passion into your organization? You can get help in jazzing up your presentation. Bring in others to help. But you should work to develop your own skills. Get feedback and act on it. The more you do this, the better you'll get and the more comfortable you'll become.

Hoenig: Try sharing your feelings and motivations with your staff. Tell them why you've accepted this increased responsibility, and let them know you believe in the company. Explain how you're stimulated and excited by these new challenges.

Shepard: Then there's the joint development with Aurora. The company is

Curricula Vitae

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IN EARLY 1999 John Cross retired as head of IT at BP Amoco PLC. Beginning in 1990, Cross presided over a radical corporatewide transformation, cutting IT costs by 50 percent while changing the IS mission from providing transactional services to acting as a strategic business partner. He is now an executive vice president with AppNet Inc., an Internet consulting and services startup in Bethesda, Md.

AS DIRECTOR FOR information management and technology issues at the U.S. General Accounting Office, **Christopher Hoenig** led a historic reform that for the first time brought private sector best practices (and the CIO position) to the federal government. Hoenig is the author of a forthcoming book from Perseus Books on problem-solving and leadership for the knowledge age. He is now CEO of Exolve Inc., a Washington, D.C.-based consulting firm.

IN 1999 Patricia Wallington retired as Xerox Corp. corporate vice president and CIO. At Xerox, Wallington forged a close relationship with CEO Paul Allaire, now chairman, and established a corporatewide leadership training program. In 1997 Wallington was inducted into the Women in Science and Technology Hall of Fame. Now based in Sarasota, Fla., Wallington is consulting part time for Xerox and others.

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pressing to start serious work on the drug modeling and simulation system, but we haven't worked out all the details to my satisfaction. I don't want to derail the project, but...

Wallington: You're doing the right thing in partnering with an outside vendor. Strategic alliances are a key mobilization strategy that CIOs are increasingly turning to. For us at Xerox, it was outsourcing. But you can't let yourself be pressured to start just because the vendor is ready to start. Working with a vendor doesn't mean the accountability goes to the vendor; accountability stays with the leader. So you have to have the time, space and resources to manage the vendor. That's a key point. Many CIOs just hand things off to the consultant, and [the project] goes down the tubes.

Shepard: I don't really have anyone who can handle that oversight now. I think it'll have to be me.

Hoenig: If you can set up someone to do it—with you as a coach—then you should because you'll train that person to take over and help develop that person's confidence as a leader.

Wallington: I've felt it's best to develop people on the job, to take some risk—put them in a position they aren't quite ready for—and coach them. You can talk to them about different options as they make decisions and ask them to consider what the results of each alternative might be. It teaches them to think about what they are doing as they're doing it.

Hoenig: I have one other word of caution about this partnership with Aurora. Don't become entranced with a particular vendor. Make sure you're aware of what its competitors are doing and, if you can get them, have multiple suppliers.

Wallington: You should RFP the project. That's how you build your network and find out what other people are capable of.

Shepard: Even if I have a relationship with this vendor?

Hoenig: If it's a good relationship and they're a really good vendor, then they'll understand the process.

Wallington: And if they win it, it will be on an objective basis.

Cross: As for your partnership with McEarnst, it sounds like you expect the company to be pitching prospective customers for your network technology.

Shepard: Not only do I have that expectation, it's built right into our contract.

Cross: Well, this could be a situation where you have to do a little disciplining. Show them they've got to stick to the agreement.

Hoenig: Yes, but you don't want to go in waving the contract around. Go back to them and review the original goals and expectations in the agreement. Talk about whether you're both going to live by them or whether they need to be changed. That will force a resolution.

Shepard: I've saved my biggest mobilization problem for last. Just like I figured, Pete Lucibelli in sales and marketing isn't cooperating. We're supposed to be working on Home Remedy Consult with that department. It's his project, and I gave him some dedicated IT staff, including my best network guy, Greg Devlin, one of those leaders I'm supposed to be developing. Well, Greg resigned this morning because he couldn't get anything done; there was no one from sales to work with.

Wallington: You've tried several things to win over Lucibelli. You've offered him a clean-slate relationship; you've given him your best people. Now you've got to get tough.

Cross: Pat's recommending violence again.

Wallington: Not really. But consider: CaliMed has limited resources; you've scrutinized your investments down to the dollar and you have someone dragging his feet, putting a project in jeopardy. The CIO has the responsibility to make this problem clear and visible to the executive team. You should recommend pulling Lucibelli's money, pulling his project and putting the money back in the investment pool for reallocation. This way you bring it right back to the senior team and make Lucibelli explain why he has put the project in this position.

This kind of conflict resolution isn't easy for the typical CIO personality. Rather than incur the wrath of the Lucibellis of this world and jeopardize relationships by putting them on the hot spot, the IT guy will generally try to keep

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John Cross, Christopher Hoenig and **Patricia Wallington** discuss other elements of enterprise leadership, including vision, innovation and execution. For this and other articles, links and leadership resources, visit *CIO*'s Leadership Research Center at *www.cio.com/forums/leadership.*

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the project going. Then, in the end, he fails and the IT organization takes the heat. It's a killer conflict.

Shepard: You're right, it's not easy. But it's part of my obligation to the company. I'll explain the options to Lucibelli, and his response will determine my next move.

Wallington: Good luck, Dave.

Epilogue

AFTER A LONG, CLOSED-DOOR conversation with Shepard, Vice President of Sales and Marketing Pete Lucibelli expressed a sudden and sincere desire to develop a better working relationship with the IT group and made a commitment to get the Home Remedy Consult project going immediately. Lucibelli began the relaunch by personally convincing Greg Devlin to return to the project. Back on the job, Devlin was teamed with two high-level marketing and sales managers. Eight days later, Lucibelli and Devlin led a demonstration of a prototype Home Remedy Web interface during a lavish project launch party. CEO Maureen Carleton was delighted, as was David Shepard, CIO and budding enterprise leader. CIO

Executive Editor Richard Pastore can be reached at pastore@cio.com.

Acknowledgements

CIO extends special thanks to John Cross, Christopher Hoenig and Patricia Wallington for their generous contribution of time and insight as well as to Warren Bennis for his expertise and commentaries. We also thank John Glaser, vice president and CIO of Partners HealthCare System Inc. in Boston, and C. Lee Jones, vice president for information management and technology at the Pharmaceutical Products division of Abbott Laboratories Inc. in Abbott Park, Ill., for their content and context guidance.

Warren Bennis's **Commentary**

Fired Up or Fired **Period**

A BIG PART OF IMPROVING THE ABILITY TO MOBILIZE IS KNOWING why mobilization doesn't happen easily. To make things happen, CIOs should first understand the dynamics of bureaucracy and resistance to change in their organizations. For example, in knowledge management, information delivery is only part of the equation. People hoard data or ignore it because of a not-invented-here attitude. CIOs need to understand these resistance factors in order to motivate people to use, share and disseminate knowledge. Many CIOs don't do a good job of this, and that's probably why you see a bifurcation in the role, with companies having a chief knowledge or learning officer as well as a CIO. That bifurcation is ridiculous. CIOs should not be relegated to gathering data while other officers promote its use; the CIO should be doing both.

We know that the rate of technological change surpasses the capacity of human beings to change. So executives desperately need someone to explain the significance and meaning of the fast-moving technologies of the Internet era. In one of my previous commentaries ("Scare Tactics," *CIO* Section 1, July 1, 1999), I stated that this was an obligation of the CIO and an important application of his strategic knowledge. It's also a mobilization strategy because if the CIO does this well, the executives will recognize the imperative to marshal the manpower, financial resources and commitment to make change happen.

I agree with David's coaches that, as part of mobilization, he must demonstrate more passion and thus generate hope and optimism. These feelings are important because investments in technology are, by their nature, investments in the future, and those can be unnerving. CIOs must encourage people up and down the line to see these investments as opportunity enablers. If David followed the recommendations in my previous case commentary—to conduct executive education seminars, form a technology review committee and address the board of directors regularly—I think he would be able to keep his executive team emotionally and physically involved. Status reports alone won't do it. In fact, status reports are the weakest tool of influence known to mankind.

Having reached the conclusion of this case study, I'm still very concerned about David. I don't think he understands, nor has he convinced CaliMed's executive team, that the CIO role is critical to the company's strategy. Even his last statement in this installment makes me wonder if he really gets it. He says, "I'll explain the options to Lucibelli, and *his* response will determine *my* next move." He's still waiting to see how people will react. Where is the leadership? If he doesn't get moving and show results soon, I think he'll be fired. I hope you, the reader, won't share that fate.

–Warren Bennis

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ShopTalk

Harvey Cabrera on Installing ERP Software

Spotlight On:

Harvey Cabrera, *director of information systems, Baxter CardioVascular Group (CVG) in Irvine, Calif., a division of Baxter Healthcare Corp., Deerfield, Ill.*

- **Line of Business** Developer and manufacturer of products used in treatment of advanced cardiovascular disease
- **Bio** A 10-year career at Baxter CVG, including a stint as IS section manager for financial systems
- **Challenges** Completing a three-phase ERP project based on Y2K compliance

Why did you decide to go with ERP?
Two years ago I did an assessment of our systems, primarily because we knew we were coming up against the Y2K issue. I saw that we had a lot of legacy systems that were dispersed and we needed more features and functionality. Here in IS, we had been working on partnering better with the business anyway, and ERP just made sense as a system that could really help us fully integrate with our business model.

How did you convince the business side that ERP was the way to go?
The Y2K issue was a catapult. ERP was a way to get in front of management on this issue. I told them it was going to be very expensive and time consuming to make our legacy systems Y2K compliant. So I was able to go to the controller and say that if we wanted to keep our legacy systems, we would need lots of money and at the end of the project we would have fewer features and less functionality—unless we changed things considerably.

So I made the case that if we installed an ERP system, we would survive the Y2K issue and have a system that better supported and enabled our business. In the end, this installation would cost us somewhere between $5 million and $10 million.

What was your ERP implementation strategy?
IS became more of a facilitator once the decision was made to go with ERP [the company chose the OneWorld system from J.D. Edwards & Co. of Denver]. We worked closely with our business partners to come up with common business practices, such as a common chart of accounts. I'm very adamant that IS doesn't build systems; we help our users build systems. This is one big project being done in three phases—it was more manageable to break it up.

The first phase was to switch over to the OneWorld financial application in our Irvine headquarters and in Puerto Rico—which we did during a category three hurricane. Then we installed the financial and manufacturing applications in the Baxter Research Medical Inc. division in Salt Lake City. Both of these installations run off the same AS/400 mainframe based in Irvine.

The final phase, switching over the financial, distribution and manufacturing applications in the Baxter Perfusion Services office in San Diego, is on a separate AS/400 and a separate data center. We began the installation in March 1998 and we went live in April 1999 with the last phase.

What advice can you offer others installing ERP?
First of all, pick the best team you can. You want people from the business side who are high energy and who really understand how their business works. The trick is convincing management to free up the best people for a project like this. Second, break the project into manageable pieces—assign a specific team to each application or module.

You also need to find ways to motivate and energize the teams involved in this kind of installation. That means IS leadership should attend as many team meetings as possible and tell the team when they are wowed by their performance.

We did some group activities like going miniature golfing, playing laser tag and racing little sports cars. These were folks who were accustomed to just doing their jobs, so this kind of fun group activity showed them they were appreciated. When you head a project like this, you have to love managing chaos. You also have to enjoy playing traffic cop and have the ability to keep your cool under pressure.

–Mindy Blodgett

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